Feb 23-27

Society of Toxicology

PROGRAM

1992 ANNUAL MEETING

SEATTLE CONVENTION CENTER

SEATTLE, WASHINGTON

FEBRUARY 23-27, 1992

2025807032

SPECIAL EVENTS

SUNDAY
2:00 p.m.–5:30 p.m.
Educational Program for Minority Students
Sponsored by the Education Committee
Sheraton Hotel-Metropolitan Room

5:30 p.m.–6:30 p.m.
Placement Service Seminar
Open to all registrants.
Convention Center-Room 612

6:30 p.m.–8:00 p.m.
SOT Welcoming Reception
Cash bar. Open to all registrants.
Convention Center-Ballroom 6E

MONDAY
9:30 a.m.–11:30 a.m.
Poster Session for Minority Students
Sponsored by the ad hoc Tox 90s Educational Issues Task Force
Sheraton Hotel-Grand Ballroom C

12:00 noon–1:00 p.m.
Graduate Student Luncheon
Open to all graduate students.
Sheraton Hotel-Grand Ballroom A&B

4:00 p.m.–5:00 p.m.
SOT Annual Business Meeting
Chaired by SOT President Donald J. Reed, Ph.D.
Members only. Special prize drawing for two airline tickets.
Convention Center-Ballroom 6B

5:00 p.m.–6:30 p.m.
Mechanisms Specialty Section Meeting
Sheraton Hotel-West Ballroom

5:00 p.m.–6:30 p.m.
Risk Assessment Specialty Section Meeting
Sheraton Hotel-East Ballroom

6:30 p.m.–8:30 p.m.
SOT Special Evening at the Seattle Museum of Art
Attendance is limited (pre-registration only). Includes: transportation, food sampling, beer, wine and soft drinks, and admission to the Museum.

TUESDAY
12:00 noon–1:00 p.m.
Burroughs Wellcome Toxicology Scholar Lecture
by Bruce D. Hammock, Ph.D.
"Selective Toxicity in the Service of Man"
Chaired by Meryl H. Karol, Ph.D.
Convention Center-Ballroom 6C

4:00 p.m.–5:00 p.m.
Effective Presentations Workshop
presented by Joe L. Mauderly, DVM
Convention Center-Room 608

5:00 p.m.–6:30 p.m.
Specialty Section Meetings, except Mechanisms and Risk Assessment
Sheraton Hotel-See calendar for room locations.

6:00 p.m.–7:30 p.m.
Pacific Northwest Regional Chapter Meeting
Sheraton Hotel—See hotel lobby board for room assignment

EVENING FREE

WEDNESDAY
12:00 noon–1:00 p.m.
Burroughs Wellcome Lecture
by Richard P. Mailman, Ph.D.
"Responses of the Brain to Toxic Insult: Molecules, Models, and Medicine"
Chaired by Meryl H. Karol, Ph.D.
Convention Center-Ballroom 6C

2:00 p.m.–4:00 p.m.
Forum for New Investigators
Sponsored by the Education Committee
Convention Center-Room 613

5:30 p.m.–7:00 p.m.
Chapter Meetings other than Pacific Northwest
Sheraton Hotel-See calendar for room locations.

7:00 p.m.–10:00 p.m.
SOT Banquet and Awards Presentation
Sheraton Hotel-Grand Ballroom

THURSDAY
12:00 noon–1:00 p.m.
SOT Issues Session
Chaired by SOT President Donald J. Reed, Ph.D.
Convention Center-Ballroom 6C

6:00 p.m.
Departure for Post-Meeting Ski Trip
Sheraton Hotel-Lobby

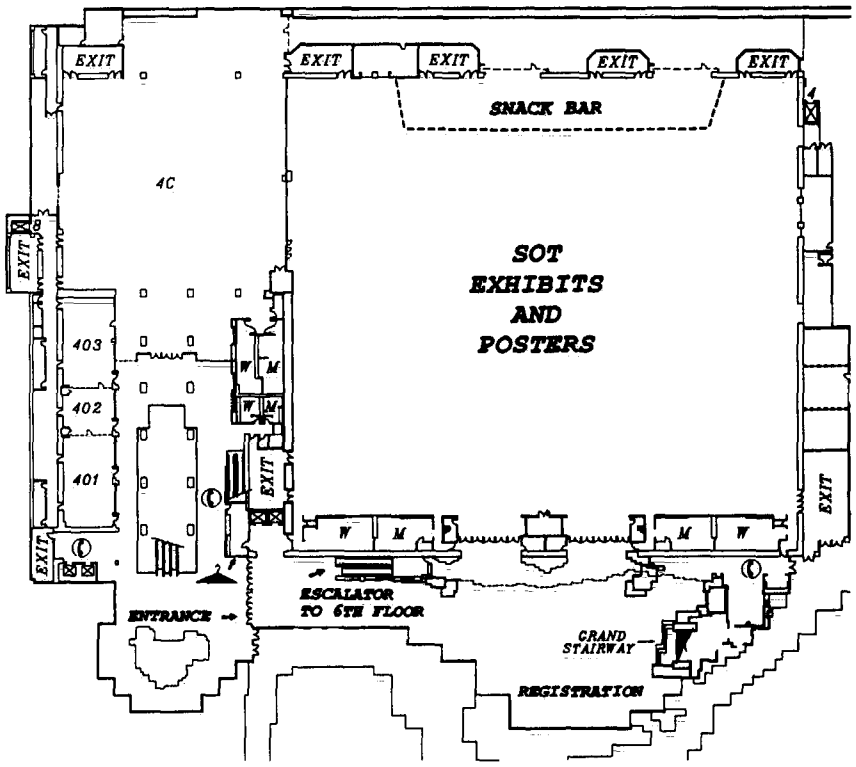
Society of Toxicology

31st Annual Meeting
Program

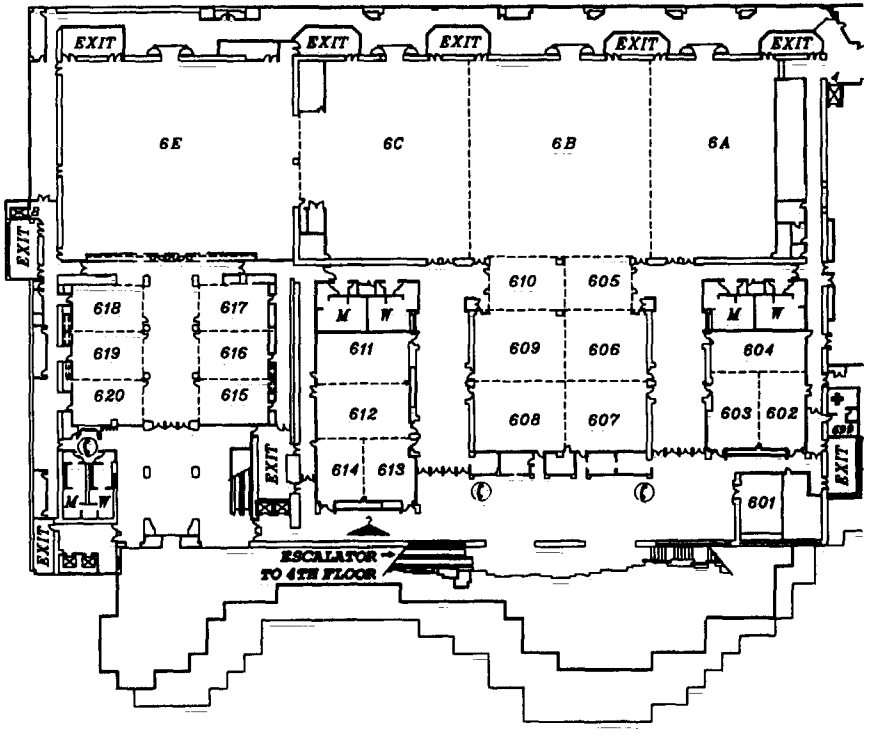
February 23–27, 1992
Seattle Convention Center
Seattle, Washington

Seattle Convention Center

LEVEL 4



LEVEL 6



	Coat Check
	Elevator
✚	First Aid
M	Men's Restroom
W	Women's Restroom
✆	Telephone

CONVENTION CENTER

CE Audio Tape Sales - 4th Floor Lobby
Message Center/Lodging Information 4th Floor
Message Center - (206) 447-5065
Placement Center - Room 205-210
Press Room - Room 511
Registration - 4th Floor Lobby
Restaurant Information Desk - 4th Floor Lobby
Slide Preview Room - Room 510
First Aid Room - Room 699 - (206) 447-5151
Security - (206) 447-5127
Audio - Visual Equipment - Room 601

SHERATON HOTEL

Business Center - Sheraton Hotel - 2nd Floor
Business Center (206) 621-9000 x5172
Business Center Fax (206) 621-6441
SOT Office - Sheraton Hotel - Madrona Room
SOT Office (206) 621-9000 x5293

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GENERAL INFORMATION

REGISTRATION

Registration Fees	Early (before Jan. 7	Late (b/t 1/7 and 2/7)	On-Site	Continuing Education Courses*
Member	$125	$150	$175	$75
NonMember	$195	$220	$245	$90
Post-doctoral in Training	$125	$150	$175	$65
Graduate or Undergraduate Student	$ 25	$ 50	$ 50	$30
Guests/Spouses	$ 30	$ 30	$ 30	N/A
Press	$ 0	$ 0	$ 0	$ 0

*In order to cover equipment rental charges, the fee for Course #4/9, PBPK Modeling, is $150.

REGISTRATION/CANCELLATION DEADLINES

The deadline for receipt of early registration is January 7, 1992. After January 7, any registrations received will be charged an additional fee of $25. The deadline for late registration for the meeting is February 7, 1992—after this date, registrations must be made on-site. On-site registration incurs an additional $25 fee above the late registration fee.

A $25 handling fee will be charged against all refunds requested prior to February 7, 1992. There will be no refunds after February 7, 1992. Refund requests must be made in writing. There are no refunds or exchanges for Continuing Education courses, the Banquet, or the social evening at the Seattle Art Museum.

REGISTRATION DESK—CONVENTION CENTER—4TH FLOOR LOBBY

Saturday, February 22* ..... 4:00 p.m.–9:00 p.m.
Sunday, February 23 ..... 7:00 a.m.–7:00 p.m.
Monday, February 24 ..... 7:00 a.m.–5:30 p.m.
Tuesday, February 25 ..... 8:00 a.m.–4:00 p.m.
Wednesday, February 26 ..... 8:00 a.m.–4:00 p.m.
Thursday, February 27 ..... 8:00 a.m.–4:00 p.m.

*You are encouraged to register on Saturday, February 22, in order to avoid delays prior to the Continuing Education courses on Sunday morning.

LOST BADGES

Lost badges may be replaced at the registration desk for a $1 fee. Complete the form available at the registration area.

MESSAGE CENTER/LODGING INFORMATION DESK—CONVENTION CENTER—4TH FLOOR LOBBY

The SOT Message Center will be in the registration area of the Seattle Convention Center during the registration hours. Please inform your office and family of the message center number: 206-447-5065.

Annual Meeting attendee lodging information will be available at the Message Center/Lodging Information Desk.

The lodging listing will be based on Seattle Housing Bureau information as of one week prior to the meeting. If you do not wish to have your lodging information made available to others, please visit the Message Center/Lodging Information Desk and have your name removed from the listing.

HOTEL ACCOMMODATIONS

The Society of Toxicology 31st Annual Meeting is headquartered at the Seattle Sheraton Hotel, with scientific sessions and exhibits at the Seattle Convention Center.

SOT has reserved blocks of rooms, with varying room rates, at other nearby properties. All are within an easy walking distance of the Seattle Sheraton and the Convention Center. For more information regarding housing, please contact the SOT Headquarters office, (202) 371-1393.

RECEIPT OF THE PROGRAM AND THE TOXICOLOGIST

1. SOT members in the U.S. and Canada will receive the Program and *The Toxicologist* (abstracts volume) prior to the meeting, as will U.S. and Canadian non-members who preregister by January 7, 1992.

2. SOT members and non-members outside the U.S. and Canada, as well as non-members in the U.S. who register after January 7, will receive the Program and *The Toxicologist* at the registration desk on-site.

3. SOT members outside of the U.S. and Canada who do not attend the meeting will receive their copies of the Program and *The Toxicologist* after the meeting.

AIR TRANSPORTATION

Arrangements have been made with Northwest, United and American Airlines for special SOT discounts on flights

to Seattle, Washington. These special discounts offer you 45% off coach fares on Northwest and 40% off coach fares on United and American, Sunday to Saturday travel. If you stay over a Saturday night, your discount can be as much as 75%. SOT discounts for travel originating in Canada can be as great as 35%, depending upon departure city and airline. These discounts are available only by calling the toll-free numbers below. Some restrictions apply, so make your reservation early. SOT's official travel agent, TRAVEL EXPRESS, is also available to handle all of your travel needs (1-800-248-1888 or 1-203-454-2888).

SPECIAL REFERENCE NUMBERS ARE ASSIGNED TO SOT. BE SURE TO REFER TO THEM WHEN YOU CALL TO MAKE YOUR RESERVATIONS.

NORTHWEST AIRLINES	UNITED AIRLINES	AMERICAN AIRLINES
No. 15493	No. 515DE	No. 0122AY

A PRIZE DRAWING WILL BE HELD FOLLOWING THE MEETING.

Attendees who purchase their tickets using SOT Airline Reference Numbers will automatically be entered into a special drawing for TWO FREE ROUND-TRIP TICKETS. Tickets are valid to anywhere in the continental U.S. for up to 12 months after the Annual Meeting.

CAR RENTAL

Seattle is located between the Olympic and Cascade mountain ranges and offers many scenic wonders. Many people enjoy driving outside the city to see Snoqualmie Falls, Lake Washington and Puget Sound, among other attractions.

AVIS Rent-A-Car is offering special SOT discount rates to Annual Meeting attendees through SOT's reference number, T524006. You may call AVIS directly at 1-800-331-1212 or you may call TRAVEL EXPRESS at 1-800-248-1888.

TRAVEL EXPRESS DESK—CONVENTION CENTER—4TH FLOOR LOBBY

TRAVEL EXPRESS, SOT's official travel agent for the Annual Meeting, will have a representative available during registration hours in the 4th floor lobby of the Convention Center. Information on flights, rental cars, and the Post-SOT Meeting Ski Trip will be available. If you have any questions, or would like to confirm that your name has been entered in the TWO FREE ROUNDTRIP Airline Ticket Drawing, please stop by the TRAVEL EXPRESS Desk.

GROUND TRANSPORTATION

Gray Line Airport Express offers daily scheduled service from Sea-Tac Airport. It stops at 11 downtown locations, including the Annual Meeting hotels. The fare is $7.00 one way and $12.00 round trip. Discount ($1 off) coupons are available through TRAVEL EXPRESS.

The taxi fare from Sea-Tac Airport to downtown Seattle is approximately $23 for one person and $.50 for each additional passenger.

SOCIAL EVENING AT SEATTLE ART MUSEUM

Monday evening, February 24, will be a unique cultural experience as attendees enjoy a sampling of culinary diversity at the newly opened Seattle Art Museum. The $38 ticket includes admission to the museum, transportation from and to the Sheraton and Westin hotels, the food sampling, beer, wine and soft drinks. Pre-registration only. Sorry, no refunds or exchanges.

SOT ANNUAL BANQUET AND AWARDS PRESENTATION—SHERATON HOTEL

The Society of Toxicology Annual Banquet and Awards Presentation will be held on Wednesday, February 26, from 7:00 p.m. to 10:00 p.m. Tickets are $38 per person, which includes your meal and wine. Meeting registrants may sponsor and prepay for tables of 10. Registrants who purchase a table are able to choose their seating arrangement prior to the Banquet by stopping by the SOT Headquarters office at the Seattle Sheraton Hotel. Requests will be honored on a first-come, first-served basis. Pre-registration only. Sorry, no refunds or exchanges.

GUEST HOSPITALITY CENTER—SHERATON HOTEL—METROPOLITAN ROOM

A large and relaxing room has been reserved Monday—Thursday in which registered guests/spouses may meet and enjoy complimentary beverages. NOTE: This room will be open to registered guests/spouses only. Special colored badges will be provided as identification and will be required for admittance.

Monday–Wednesday ..... 9:00 a.m.–4:00 p.m.
Thursday ..... 9:00 a.m.–12:00 noon

TOURS—SHERATON HOTEL—METROPOLITAN ROOM

A representative of Seattle VIP Services will be available on Monday in the Guest Hospitality Center at the Sheraton Hotel to provide guests with information on offered tours.

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RESTAURANT INFORMATION SERVICE—CONVENTION CENTER—4TH FLOOR LOBBY

The Restaurant Information Service will provide maps and menus of Seattle restaurants, and is available to make reservations upon request.

SOT MEMORABILIA—CONVENTION CENTER—4TH FLOOR LOBBY

Umbrellas, t-shirts and sweatshirts with the SOT logo will be available in the 4th floor lobby of the Convention Center during registration hours.

Item	Price	Tax	Total
Umbrellas	$10.17	$ .83	$11.00
T-shirts	$ 8.32	$ .68	$ 9.00
Sweatshirts	$18.49	$1.51	$20.00

SOT HEADQUARTERS OFFICE—SHERATON HOTEL—JUNIPER/MADRONA ROOMS

Saturday ..... 2:00 p.m.–7:00 p.m.
Sunday ..... 7:00 a.m.–4:00 p.m.
Monday ..... 7:00 a.m.–4:00 p.m.
Tuesday ..... 7:30 a.m.–4:00 p.m.
Wednesday ..... 8:00 a.m.–4:00 p.m.
Thursday ..... 8:00 a.m.–4:00 p.m.

PLACEMENT SERVICE—CONVENTION CENTER—ROOMS 205-210

Sunday ..... 10:00 a.m.–4:00 p.m.
(Registration only for Candidates and Employers—no searches, messages or interviews)

Monday–Wednesday ..... 9:00 a.m.–4:00 p.m.
(All services available)

PRESS ROOM—CONVENTION CENTER—ROOM 511

Sunday–Wednesday ..... 8:00 a.m.–5:00 p.m.
Thursday ..... 8:00 a.m.–4:00 p.m.

SPEAKERS' SLIDE PREVIEW ROOM—CONVENTION CENTER—ROOM 510

Saturday ..... 2:00 p.m.–8:00 p.m.
Sunday–Thursday ..... 7:00 a.m.–4:00 p.m.

EXHIBITS—CONVENTION CENTER—EXHIBIT HALL

Monday–Wednesday ..... 8:30 a.m.–4:30 p.m.

Note: Coffee, sodas and a quick-serve breakfast and luncheon will be available for purchase in the Exhibit Hall, Monday through Wednesday.

HANDICAPPED REGISTRANTS

Please see Trish Small in the SOT Headquarters office at the Seattle Sheraton, Juniper/Madrona Room, if you need assistance determining the best handicapped access route to the meeting rooms and social functions or need other assistance.

BUSINESS CENTER—SHERATON HOTEL—2ND FLOOR

The Sheraton operates a business center on the 2nd floor of the hotel. The center provides copying, typing, computer rental, shipping (overnight services, postage, etc.) and the sending and receiving of facsimiles for a charge. The business center is open 8:30 a.m. to 5:30 p.m. Monday through Friday. The center is closed on Saturday and Sunday, however, the facsimile machine is monitored on a 24-hour basis. The business center phone number is 206-621-9000, x5172, and the fax number is 206-621-6441.

CONVENTION CENTER FIRST AID—CONVENTION CENTER—ROOM 699

If an emergency occurs at the Convention Center, proceed to the nearest courtesy telephone and call the extension listed for Security Control. State the telephone number and area from which you are calling, as well as the nature and location of the incident. The Emergency Medical Team will arrive within minutes.

PROGRAM SUMMARY

Continuing Education Courses (Pre-registration only)

All courses are held on Sunday, February 23, 1992. Please check the signage at the Convention Center for room assignments.

Note: Your course materials will be available in the course room immediately prior to the course (they will not be available at the registration area). If you have your course ticket, go directly to the assigned course room (see signage on the 6th Floor of the Convention Center for exact locations). If you have not received your course ticket, please go to the registration area on Saturday afternoon/evening or on Sunday morning. If you have misplaced your ticket, please go to the Continuing Education Information Booth on the 6th Floor of the Convention Center on Sunday (the booth will be open 7:30 a.m.–2:00 p.m.).

8:00 a.m.–12:00 Noon

1. Basic and Applied Hematotoxicity
2. Case Studies in Risk Assessment: Emphasis on Exposure (repeated in the afternoon)
3. Development and Safety Evaluation of Recombinant Products for Pharmaceutical and Agricultural Use
4. Implementing Physiologically Based Pharmacokinetic Modeling—Interactive Computer Session (repeated in the afternoon)
5. Liver Toxicology
6. Molecular Control of Cell Proliferation (repeated in the afternoon)

1:30 p.m.–5:30 p.m.

7. Case Studies in Risk Assessment: Emphasis on Exposure (also offered in the morning)
8. Developmental Toxicity: Cellular and Molecular Approaches
9. Implementing Physiologically Based Pharmacokinetic Modeling—Interactive Computer Session (also offered in the morning)
10. Molecular Control of Cell Proliferation (also offered in the morning)
11. Renal Toxicology
12. Toxicity of Halogenated Hydrocarbons

Note: All scientific sessions are held in the Seattle Convention Center.

SYMPOSIA

Day/Time	Topic/Abstract#	Room	Page
Monday 8:30 a.m.	Gonadal Control Growth Factors, and Tumorigenesis and Their Implications in Risk Assessment #1-6	Ballroom 6A	17
Monday 8:30 a.m.	Risk Assessment of Chemical Mixtures: Biologic and Toxicologic Issues #7-12	Ballroom 6C	18
Monday 1:00 p.m.	Molecular Mechanisms Underlying Chemical Alterations of Gene Expression #236-241	Ballroom 6A	32
Monday 1:00 p.m.	Toxicity Assessment of Mercury Vapor from Dental Amalgams #242-246	Ballroom 6C	32
Tuesday 8:30	Current Controversies in Cancer Causation #447-451	Ballroom 6A	45
Tuesday 8:30 a.m.	Neuronal-Glial Interactions: Relevance to Neurotoxic Mechanisms #452-456	Ballroom 6C	45
Tuesday 1:30 p.m.	Chemical Allergy: Molecular Mechanisms and Practical Applications #668-672	Ballroom 6A	58
Tuesday 1:30 p.m.	Peroxidases and Peroxyl Radicals in Toxicity #673-677	Ballroom 6C	58
Wednesday 8:30 a.m.	Nucleic Acid-Based Technology for Gene Specific Analysis of Toxicology #896-900	Ballroom 6A	71
Wednesday 8:30 a.m.	Molecular and Cellular Mechanisms of Chronic Lung Disease #901-905	Ballroom 6C	72
Wednesday 8:30 a.m.	Specific Protein Changes as Indicators of Toxicologic Mechanism #906-910	Ballroom 6B	72

Wednesday 1:30 p.m.	Advances in Biologically-Based Models for Respiratory Tract Uptake of Inhaled Vapors #1097-1101	Ballroom 6A	83	32
Wednesday 1:30 p.m.	Molecular Responses to Environmental Modification of Critical Genes #1102-1106	Ballroom 6C	84	32
Thursday 8:30 a.m.	Ecogenetics: Genetic Susceptibility to Environmental Agents #1321-1325	Ballroom 6A	97	45
Thursday 8:30 a.m.	Improvements in Quantitative Noncancer Risk Assessment #1326-1330	Ballroom 6C	97	45
Thursday 1:30 p.m.	Free Radicals in Toxicology #1524-1528	Ballroom 6A	109	58
Thursday 1:30 p.m.	Fluoride Toxicology and Risk Assessment #1529-1533	Ballroom 6C	109	58

PLATFORM SESSIONS

Monday 8:30 a.m.	Metal Toxicology #13-22	Room 607	18	
Monday 8:30 a.m.	Polycyclic Aromatic Hydrocarbons: Metabolism and Biological Effects #23-33	Room 608	19	71
Monday 8:30 a.m.	Lower Respiratory Tract Toxicology #34-43	Room 611	20	72
Monday 1:00 p.m.	Hepatic Toxicity #247-256	Room 607	33	
Monday 1:00 p.m.	Immunotoxicology I #257-266	Room 608	34	72
Tuesday 8:30 a.m.	Risk Assessment I #457-466	Room 607	46	
Tuesday 8:30 a.m.	Subcellular Site of Action of TCDD #467-476	Room 608	46	
Tuesday 1:30 p.m.	Risk Assessment II #678-687	Room 607	59	
Tuesday 1:30 p.m.	Biological Markers #688-697	Room 608	59	
Wednesday 8:30 a.m.	Cytochrome P-450: Molecular Characterization and Expression #911-920	Room 607	73	
Wednesday 8:30 a.m.	Renal Toxicology #921-930	Room 608	73	
Wednesday 1:30 p.m.	Reactive Intermediates and Covalent Binding #1107-1116	Room 607	84	
Wednesday 1:30 p.m.	Phagocytic Cell Induced Injury #1117-1126	Room 608	85	
Wednesday 1:30 p.m.	Receptors and Signal Transduction #1127-1136	Room 611	85	
Thursday 8:30 a.m.	Immunotoxicology II #1331-1340	Room 607	98	
Thursday 8:30 a.m.	Glutathione Conjugates and Bioactivation #1341-1351	Room 608	98	
Thursday 1:30 p.m.	Xenobiotic Induced Changes in Hematopoietic/ Phagocytic Cells #1534-1543	Room 607	110	
Thursday 1:30 p.m.	Responses of Aquatic Animals to Environmental Toxicants #1544-1555	Room 608	111	

POSTER DISCUSSION SESSIONS

Monday 8:30 a.m.	Peroxisome Proliferation: Effects at the Cellular Level #44-56	Room 605	20	
Monday 8:30 a.m.	Delayed Neuropathy #57-68	Room 609	21	
Monday 1:00 p.m.	Fiber Toxicity #267-277	Room 605	34	
Monday 1:00 p.m.	*In Vitro* Models for Assessment of Nephrotoxicity #278-288	Room 609	35	

Tuesday 8:30 a.m.	Cytochrome P-450: Factors Influencing Expression #477-487	Room 605	47
Tuesday 8:30 a.m.	Metallothionein #488-500	Room 609	48
Tuesday 1:30 p.m.	Cytoskeleton #698-708	Room 605	60
Tuesday 1:30 p.m.	TCDD: Recent Studies #709-718	Room 609	61
Wednesday 8:30 a.m.	Risk Assessment of Toxic and Essential Metals #931-942	Room 605	74
Wednesday 1:30 p.m.	Ocular/Dermal *In Vitro* Toxicity Assessment #1137-1148	Room 605	86
Wednesday 1:30 p.m.	Methods in Immunotoxicology #1149-1158	Room 609	87
Thursday 8:30 a.m.	Advances in Physiologically-Based Pharmacokinetic Models #1352-1361	Room 605	99
Thursday 8:30 a.m.	Approaches to Neurotoxicity Screening #1362-1371	Room 609	100
Thursday 1:30 p.m.	Genetic Variations in Susceptibility to Environmental Agents #1556-1565	Room 605	111
Thursday 1:30 p.m.	Mechanisms of Nasal Toxicity #1566-1577	Room 609	112

POSTER SESSIONS

Sessions indicated by an asterisk (*) will be attended from 8:30 a.m. to 10:00 a.m. or 1:30 p.m. to 3:00 p.m. (except on Monday afternoon, when they will be attended 1:00 p.m. to 2:30 p.m.). Those without an asterisk will be attended from 10:00 a.m. to 11:30 a.m. or 3:00 p.m. to 4:30 p.m. (except on Monday afternoon, when they will be attended 2:30 p.m. to 4:00 p.m.).

Monday 8:30 a.m.	*Immunotoxicology I #69-102	Exhibit Hall	22
Monday 8:30 a.m.	Oncogenes #103-110	Exhibit Hall	24
Monday 8:30 a.m.	*Genotoxicity #111-134	Exhibit Hall	24
Monday 8:30 a.m.	Biotransformation I #135-154	Exhibit Hall	26
Monday 8:30 a.m.	*Hepatic Toxicology I #155-174	Exhibit Hall	27
Monday 8:30 a.m.	Oxidative Stress #175-208	Exhibit Hall	28
Monday 8:30 a.m.	*TCDD #209-235	Exhibit Hall	30
Monday 1:00 p.m.	*Risk Assessment I #289-312	Exhibit Hall	36
Monday 1:00 p.m.	*In Vivo* Developmental Toxicology #313-334	Exhibit Hall	37
Monday 1:00 p.m.	*Ocular #335-341	Exhibit Hall	38
Monday 1:00 p.m.	Dermal #342-381	Exhibit Hall	38
Monday 1:00 p.m.	*Pathology #382-392	Exhibit Hall	41
Monday 1:00 p.m.	Pesticides #393-425	Exhibit Hall	41
Monday 1:00 p.m.	*Calcium #426-437	Exhibit Hall	43
Monday 1:00 p.m.	Endocrine #438-446	Exhibit Hall	44
Tuesday 8:30 a.m.	*Foods and Natural Products #501-525	Exhibit Hall	48
Tuesday 8:30 a.m.	Pharmaceuticals #526-554	Exhibit Hall	50
Tuesday 8:30 a.m.	*Disposition #555-588	Exhibit Hall	51
Tuesday 8:30 a.m.	Biotransformation: Conjugation Reactions #589-601	Exhibit Hall	53
Tuesday 8:30 a.m.	*Oxidants & Lipid Peroxidation #602-622	Exhibit Hall	54
Tuesday 8:30 a.m.	Immunotoxicology II #623-642	Exhibit Hall	55
Tuesday 8:30 a.m.	*Molecular and Cellular Toxicology #643-667	Exhibit Hall	56

24	Tuesday 1:30 p.m.	*Reproductive Toxicology I #719-735	Exhibit Hall	61
26	Tuesday 1:30 p.m.	Hepatic Carcinogenesis #736-768	Exhibit Hall	62
27	Tuesday 1:30 p.m.	*Metals Toxicology I #769-792	Exhibit Hall	64
28	Tuesday 1:30 p.m.	Toxicokinetics #793-823	Exhibit Hall	65
30	Tuesday 1:30 p.m.	*Inhalation I #824-858	Exhibit Hall	67
36	Tuesday 1:30 p.m.	Solvents #859-881	Exhibit Hall	69
37	Tuesday 1:30 p.m.	*Chemical Interactions and Mixtures #882-895	Exhibit Hall	70
38	Wednesday 8:30 a.m.	*Covalent Binding and Adduct Formation #943-973	Exhibit Hall	75
38	Wednesday 8:30 a.m.	Methods #974-1005	Exhibit Hall	76
41	Wednesday 8:30 a.m.	*Cell Proliferation #1006-1027	Exhibit Hall	78
41	Wednesday 8:30 a.m.	Neurotoxicology I #1028-1061	Exhibit Hall	79
43	Wednesday 8:30 a.m.	*Peripheral Nervous System #1062-1077	Exhibit Hall	81
44	Wednesday 8:30 a.m.	Hematopoietic/ Phagocytic Cells #1078-1096	Exhibit Hall	82
48	Wednesday 1:30 p.m.	*Risk Assessment II #1159-1183	Exhibit Hall	87
50	Wednesday 1:30 p.m.	Metals Toxicology II #1184-1205	Exhibit Hall	89
51	Wednesday 1:30 p.m.	*Neurotoxicology: Toxic Metals #1206-1227	Exhibit Hall	90
53	Wednesday 1:30 p.m.	Neurotoxicology II #1228-1262	Exhibit Hall	91
54	Wednesday 1:30 p.m.	*Biotransformation II #1263-1282	Exhibit Hall	93
55	Wednesday 1:30 p.m.	*In Vitro* Developmental Toxicology #1283-1299	Exhibit Hall	94
56	Wednesday 1:30 p.m.	*Environmental Toxicology #1300-1320	Exhibit Hall	95
	Thursday 8:30 a.m.	*Communication/ Education #1372-1377	Exhibit Hall	100
	Thursday 8:30 a.m.	Inhalation II #1378-1404	Exhibit Hall	101
	Thursday 8:30 a.m.	*Metals Toxicology III #1405-1427	Exhibit Hall	102
	Thursday 8:30 a.m.	*In Vitro* Hepatic Toxicity #1428-1451	Exhibit Hall	103
	Thursday 8:30 a.m.	**In Vitro* Toxicity Assessment #1452-1463	Exhibit Hall	105
	Thursday 8:30 a.m.	Carcinogenesis #1464-1492	Exhibit Hall	105
	Thursday 8:30 a.m.	*Cardiovascular #1493-1509	Exhibit Hall	107
	Thursday 8:30 a.m.	Metabolite Identification #1510-1523	Exhibit Hall	108
	Thursday 1:30 p.m.	*Cytochrome P-450 #1578-1609	Exhibit Hall	113
	Thursday 1:30 p.m.	Glutathione #1610-1635	Exhibit Hall	114
	Thursday 1:30 p.m.	*Hepatic Toxicity II #1636-1657	Exhibit Hall	116
	Thursday 1:30 p.m.	Halogenated Hydrocarbons #1658-1682	Exhibit Hall	117
	Thursday 1:30 p.m.	*Renal Toxicology #1683-1704	Exhibit Hall	118
	Thursday 1:30 p.m	Reproductive Toxicology II #1705-1730	Exhibit Hall	120

MEDLINE DEMONSTRATION

Monday–Wednesday, February 24–26
10:00 a.m.–12:00 Noon and 2:00 p.m.–4:00 p.m.
Convention Center—Room 603

Through the National Library of Medicine (NLM), professionals in toxicology and related areas can have access to more than 40 databases that comprise the most comprehensive collection of information resources in the world. The overview/hands-on sessions will highlight the GRATEFUL MED software used to search the toxicology-related databases that are developed and maintained by NLM's Toxicology Information Program (TIP).

The program's on-line factual and bibliographic files contain comprehensive information including chemical identification, the toxicological effects of drugs and other chemicals, and the handling of hazardous wastes and emergency responses. Data on estimated releases of toxic chemicals to the environment, teratology and developmental toxicology, EPA's carcinogenic and noncarcinogenic health risk and regulatory information are also available. Each morning and afternoon (Monday through Wednesday), half-hour overviews will be presented on how to use the GRATEFUL MED software to access and search the Toxicology Information Program files of the National Library of Medicine. The remainder of the time of each session will be used for the attendees to practice hands-on on-line searching. Microcomputer-based tutorials used to teach professionals how to effectively search some of the NLM/TIP files will also be available for examination during the hands-on sessions.

Smoking is not permitted in scientific sessions

1992 EXHIBITORS

Alphabetical Listing
(As of December 6, 1991)

(See Exhibit Directory on-site for product/service descriptions, a map of booth locations and other information)

ABC Laboratories	100
Academic Press, Inc.	307
Allentown Caging Equipment Co., Inc.	501
Alza Corporation	408,410
American Board of Toxicology	TBD
Ani Lytics, Inc.	215
Animal Identification & Marking Systems	415
Applied Imaging Corporation	337,339
Arthur D. Little, Inc.	226
AVID	436
Battelle	617,619
Bench International Search, Inc.	300
BIBRA Toxicology International	622
Bio Medic Data Systems Inc.	500,502
Bio-Life Associates, Ltd.	623
Bio-Research Laboratories, Ltd.	222
Bio-Serv Inc.	627
Bio/Dynamics Inc.	301
Biological Test Center	318
Biotechnical Services, Inc.	426
Buxco Electronics, Inc.	511
Charles River Laboratories, Inc	200,202,204
Chemical Design Inc.	423,425
Clement International Corp.	225
Clonetics Corporation	336
Collaborative Biomedic Products/B-D	416
Colorado Histo-Prep, Inc.	515
Compact Cambridge	110
Compliance Services International	118
CRC Press Inc./Lewis Publishers Inc.	610
Crown Glass Company, Inc.	636
Data Sciences, International	224
Environmental Health Research & Testing	437
Elsevier Science Publishing	401
Experimental Pathology Labs, Inc. (EPL)	625
Fraser Williams (Data Systems)	632
Genesys Research, Inc.	302
GenPharm International	325
Gentest Corporation	439
Harlan Sprague Dawley, Inc.	304
Hazleton	503,505
Hazleton Research Products, Inc.	406
Health & Environment International Ltd.	232
Health Designs, Inc. (HDi)	317,319
Hemisphere/Taylor & Francis	209
The Hill Top Companies	309,311
Huntingdon Research Centre	508,510
IIT Research Institute	310
In Vitro Alternatives, Inc.	523,525
In Vitro Technologies Inc.	422
Innapharma Inc.	428
International Bio-Research	526,528
Inveresk Research International	117,119,604
IPA-LABCAT	605
IRDC-International Research and Development Corporation	616,618
ISIS BioComp	430
ITR Laboratories Canada, Inc.	332
John Wiley & Sons	514
LAB Products Inc.	203,205
Large Scale Biology Corporation	122,124
Life Science Research/LSR	301
LogiChem Inc.	626
LSR Industries, Inc.	326
ManTech Environmental Tech. Inc.	427
Marrow-Tech, Inc.	637
McGraw-Hill	330
Meridian Instruments, Inc.	236,238
Microbics Corporation	518
Microbiological Associates, Inc.	403,405
Midwest Research Institute	123
Millipore Corporation	609
Mini-Mitter Co., Inc.	231
Modular Instruments, Inc.	116
Molecular Devices Corporation	611
Nalge Company	227
National Library of Medicine	219
National Research Council	TBD
Nature Publishing/Lab Animal Magazine	516
Nature Publishing Company	237
NIEHS	TBD
NMSU-Regional Primate Research Lab.	109
Northview Pacific Laboratories	417
NuAire, Inc.	239
Ohaus Scale Corporation	217
Organogenesis	327
Pan Labs Inc.	536
Pathology Associates, Inc.	419
Pergamon Press	530
Pharmacia Deltec, Inc.	424
Pharmakon Research International, Inc.	214
Plenum Publishing Corp.	615
Po-ne-mah, Inc.	103
Popper & Sons, Inc.	533
Product Safety Labs	614
Purina Mills, Inc.	201
Raven Press	409
Razel Scientific Instruments, Inc.	608
RCC	522,524
Research Triangle Institute	322
Ricerca, Inc.	111
Roboz Surgical Instrument Co., Inc.	433
Ropak Laboratories	216,218
Roy F Weston, Inc.	323
San Diego Instruments	108
Sartorius Corporation	115
Science Magazine/AAAS	431
Scientists Cntr. for Animal Welfare	TBD
SilverPlatter Information, Inc.	105
SITEK Research Laboratories	114
Shin Nippon Biomedical Laboratories	633
Southwest Research Institute	532
Springborn Laboratories, Inc.	601,603
SRI International	314
Statistics Unlimited, Inc.	639
Stillmeadow, Inc.	411
Stratagene	527,529
Suburban Surgical Co., Inc.	509
Taconic Laboratory Animals & Services	233
TNO-CIVO Tox. & Nutrition Inst.	624
Torpac Capsules	438
Tox Monitor Laboratories, Inc.	316
Toxicol Laboratories Ltd.	208,210
Toxikon	418
TPS, Inc.	125
TSI Corporation	517,519
Unifab Corp.	600,602
United States Testing Co., Inc.	223
Utah Biomedical Test Lab (UBTL)	324
Van Nostrand Rheinhold	628
VCH Publishers, Inc.	316
Va Tech Lab for Neurotoxicity Studies	229
Vitron, Inc.	211
White Eagle Toxicology Labs.	308
Wil Research Laboratories, Inc.	102,104
Wildlife International, Ltd.	101

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PROGRAM

SUNDAY, FEBRUARY 23

CONTINUING EDUCATION COURSES:

8:00 a.m. - 12:00 Noon

1. Basic and Applied Hematotoxicity
2. Case Studies in Risk Assessment: Emphasis on Exposure
3. Development and Safety Evaluation of Recombinant Products for Pharmaceutical and Agricultural Use
4. Implementing PBPK—Interactive Computer Session
5. Liver Toxicology
6. Molecular Control of Cell Proliferation

1:30 p.m. - 5:30 p.m.

7. Case Studies in Risk Assessment: Emphasis on Exposure
8. Developmental Toxicity: Cellular and Molecular Approaches
9. Implementing PBPK—Interactive Computer Session
10. Molecular Control of Cell Proliferation
11. Renal Toxicology
12. Toxicity of Halogenated Hydrocarbons

MONDAY, FEBRUARY 24

SYMPOSIA

8:30 a.m.

Gonadal Control, Growth Factors, and Tumorigenesis and Their Implications in Risk Assessment

Risk Assessment of Chemical Mixtures: Biologic & Toxicologic Issues

1:00 p.m.

Molecular Mechanisms Underlying Chemical Alterations of Gene Expression

Toxicity Assessment of Mercury Vapor from Dental Amalgams

PLATFORM SESSIONS

8:30 a.m.

Metal Toxicology

Polycyclic Aromatic Hydrocarbons: Metabolism and Biological Effects

Lower Respiratory Tract Toxicology

1:00 p.m.

Hepatic Toxicity

Immunotoxicology I

POSTER DISCUSSION SESSIONS

8:30 a.m.

Peroxisome Proliferation: Effects at the Cellular Level

Delayed Neuropathy

1:00 p.m.

Fiber Toxicity

In Vitro Models for Assessment of Nephrotoxicity

POSTER SESSIONS

8:30 a.m.

Immunotoxicology I
Oncogenes
Genotoxicity
Biotransformation I
Hepatic Toxicology I
Oxidative Stress
TCDD

1:00 p.m.

Risk Assessment I
In Vivo Developmental Toxicology
Ocular
Dermal
Pathology
Pesticides
Calcium
Endocrine

MEDLINE DEMONSTRATION

10:00 a.m. - 12:00 noon and
2:00 p.m. - 4:00 p.m.

TUESDAY, FEBRUARY 25

SYMPOSIA

8:30 a.m.

Current Controversies in Cancer Causation

Neuronal-Glial Interactions: Relevance to Neurotoxic Mechanisms

1:30 p.m.

Chemical Allergy: Molecular Mechanisms and Practical Applications

Peroxidases and Peroxyl Radicals in Toxicity

PLATFORM SESSIONS

8:30 a.m.

Risk Assessment I

Subcellular Site of Action of TCDD

1:30 p.m.

Risk Assessment II

Biological Markers

POSTER DISCUSSION SESSIONS

8:30 a.m.

Cytochrome P-450: Factors Influencing Expression

Metallothionein

1:30 p.m.

Cytoskeleton

TCDD: Recent Studies

POSTER SESSIONS

8:30 a.m.

Foods and Natural Products
Pharmaceuticals
Disposition
Biotransformation: Conjugation Reactions
Oxidants and Lipid Peroxidation
Immunotoxicology II
Molecular and Cellular Toxicology

1:30 p.m.

Reproductive Toxicology I
Hepatic Carcinogenesis
Metals Toxicology I
Toxicokinetics
Inhalation I
Solvents
Chemical Interactions and Mixtures

MEDLINE DEMONSTRATION

10:00 a.m. - 12:00 noon and
2:00 p.m. - 4:00 p.m.

OVERVIEW

WEDNESDAY, FEBRUARY 26

SYMPOSIA

8:30 a.m.

Nucleic Acid-Based Technology for Gene Specific Analysis of Toxicology

Molecular and Cellular Mechanisms of Chronic Lung Disease

Specific Protein Changes as Indicators of Toxicologic Mechanism

1:30 p.m.

Advances in Biologically Based Models for Respiratory Tract Uptake of Inhaled Vapors

Molecular Responses to Environmental Modification of Critical Genes

PLATFORM SESSIONS

8:30 a.m.

Cytochrome P-450: Molecular Characterization and Expression

Renal Toxicology

1:30 p.m.

Reactive Intermediates and Covalent Binding

Phagocytic Cell Induced Injury

Receptors and Signal Transduction

POSTER DISCUSSION SESSIONS

8:30 a.m.

Risk Assessment of Toxic and Essential Metals

1:30 p.m.

Ocular/Dermal *In Vitro* Toxicity Assessment

Methods in Immunotoxicology

POSTER SESSIONS

8:30 a.m.

Covalent Binding & Adduct Formation Methods

Cell Proliferation

Neurotoxicology I

Peripheral Nervous System

Hematopoietic/Phagocytic Cells

1:30 p.m.

Risk Assessment II

Metals Toxicology II

Neurotoxicology: Toxic Metals

Neurotoxicology II

Biotransformation II

In Vitro Developmental Toxicology

Environmental Toxicology

MEDLINE DEMONSTRATION

10:00 a.m. - 12:00 noon and
2:00 p.m. - 4:00 p.m.

THURSDAY, FEBRUARY 27

SYMPOSIA

8:30 a.m.

Ecogenetics: Genetic Susceptibility to Environmental Agents

Improvements in Quantitative Noncancer Risk Assessment

1:30 p.m.

Free Radicals in Toxicology

Fluoride Toxicology and Risk Assessment

PLATFORM SESSIONS

8:30 a.m.

Immunotoxicology II

Glutathione Conjugates & Bioactivation

1:30 p.m.

Xenobiotic Induced Changes in Hematopoietic/Phagocytic Cells

Responses of Aquatic Animals to Environmental Toxicants

POSTER DISCUSSION SESSIONS

8:30 a.m.

Advances in Physiologically Based Pharmacokinetic Models

Approaches to Neurotoxicity Screening

1:30 p.m.

Genetic Variations in Susceptibility to Environmental Agents

Mechanisms of Nasal Toxicity

POSTER SESSIONS

8:30 a.m.

Communication/Education

Inhalation II

Metals Toxicology III

In Vitro Hepatic Toxicity

In Vitro Toxicology Assessment

Carcinogenesis

Cardiovascular

Metabolite Identification

1:30 p.m.

Cytochrome P-450

Glutathione

Hepatic Toxicity II

Halogenated Hydrocarbons

Renal Toxicology

Reproductive Toxicology II

SPECIAL EVENTS SPONSORED BY THE SOCIETY OF TOXICOLOGY

Sunday

2:00 p.m.	Educational Program for Minority Students
5:30 p.m.	Placement Service Seminar
6:30 p.m.	Welcoming Reception

Monday

9:30 a.m.	Poster Session for Minority Students
12:00 noon	Graduate Student Luncheon.
4:00 p.m.	Annual Business Meeting
5:00 p.m.	Mechanisms and Risk Assessment Specialty Section Meetings
6:30 p.m.	SOT Social Evening at the Seattle Museum of Art

Tuesday

12:00 noon	Burroughs Wellcome Toxicology Scholar Award Lecture by Bruce D. Hammock, Ph.D.
4:30 p.m.	Effective Presentations Workshop
5:00 p.m.	Specialty Section Meetings (except Mechanisms and Risk Assessment)
6:00 p.m.	Pacific Northwest Regional Chapter Meeting

Wednesday

12:00 noon	Burroughs Wellcome Toxicology Scholar Award Lecture by Richard B. Mailman, Ph.D.
2:00 p.m.	Forum for New Investigators
5:30 p.m.	Chapter Meetings (except Pacific Northwest)
7:00 p.m.	Annual Banquet and Awards Presentation

Thursday

12:00 noon	SOT Issues Session
6:00 p.m.	Departure for Post Meeting Ski Trip

VERVIEW

:DNESDAY, FEBRUARY 26

SYMPOSIA

a.m.
:ic Acid-Based Technology for
ene Specific Analysis of Toxicology
cular and Cellular Mechanisms of
hronic Lung Disease
ific Protein Changes as Indicators
Toxicologic Mechanism

p.m.
nces in Biologically Based Models
r Respiratory Tract Uptake of
haled Vapors
cular Responses to Environmental
lodification of Critical Genes

PLATFORM SESSIONS

a.m.
chrome P-450: Molecular
haracterization and Expression
l Toxicology

p.m.
tive Intermediates and Covalent
inding
ocytic Cell Induced Injury
ptors and Signal Transduction

POSTER DISCUSSION SESSIONS

a.m.
Assessment of Toxic and
ssential Metals

p.m.
ar/Dermal *In Vitro* Toxicity
ssessment
ods in Immunotoxicology

POSTER SESSIONS

a.m.
lent Binding & Adduct Formation
hods
Proliferation
rotoxicology I
pheral Nervous System
atopoietic/Phagocytic Cells

p.m.
Assessment II
als Toxicology II
rotoxicology: Toxic Metals
rotoxicology II
ransformation II
itro Developmental Toxicology
ironmental Toxicology

EDLINE DEMONSTRATION

0 a.m. - 12:00 noon and
p.m. - 4:00 p.m.

THURSDAY, FEBRUARY 27

SYMPOSIA

8:30 a.m.
Ecogenetics: Genetic Susceptibility to Environmental Agents
Improvements in Quantitative Noncancer Risk Assessment

1:30 p.m.
Free Radicals in Toxicology
Fluoride Toxicology and Risk Assessment

PLATFORM SESSIONS

8:30 a.m.
Immunotoxicology II
Glutathione Conjugates & Bioactivation

1:30 p.m.
Xenobiotic Induced Changes in Hematopoietic/Phagocytic Cells
Responses of Aquatic Animals to Environmental Toxicants

POSTER DISCUSSION SESSIONS

8:30 a.m.
Advances in Physiologically Based Pharmacokinetic Models
Approaches to Neurotoxicity Screening

1:30 p.m.
Genetic Variations in Susceptibility to Environmental Agents
Mechanisms of Nasal Toxicity

POSTER SESSIONS

8:30 a.m.
Communication/Education
Inhalation II
Metals Toxicology III
In Vitro Hepatic Toxicity
In Vitro Toxicology Assessment
Carcinogenesis
Cardiovascular
Metabolite Identification

1:30 p.m.
Cytochrome P-450
Glutathione
Hepatic Toxicity II
Halogenated Hydrocarbons
Renal Toxicology
Reproductive Toxicology II

SPECIAL EVENTS SPONSORED BY THE SOCIETY OF TOXICOLOGY

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7:00 p.m.	Annual Banquet and Awards Presentation
Thursday	
12:00 noon	SOT Issues Session
6:00 p.m.	Departure for Post Meeting Ski Trip

CONTINUING EDUCATION COURSES

All courses are held on Sunday, February 23, 1992 (Preregistration Only)

8:00 am—12:00 noon

1. Basic and Applied Hematotoxicity

Chairperson: Dan Wierda, Eli Lilly & Company, Greenfield, IN

This basic course will review recent advances in our understanding of mechanisms of chemically-induced hematotoxicity. The first lecture will discuss the basic biology of bone marrow stem cells with respect to their impact on the interpretation and design of studies to evaluate the effects of drugs and chemicals on stem cells. The second lecture will discuss the development of novel *in vitro* methods for growing bone marrow stromal cells and hemopoietic cells, which make it possible to identify some of the cell-interaction molecules that mediate communication between stromal cells and developing myeloid and lymphoid cells. The third lecture will describe the role of xenobiotic metabolism in the toxicity of chemicals to the bone marrow. Benzene and benzo(a)pyrene will be used as examples to illustrate the importance of bioactivation, detoxification and elimination, both within the bone marrow and other organs, as underlying factors in the development of toxicity to the bone marrow as a whole, as well as to specific bone marrow cell lineages. The final lecture will provide an overview of different approaches that can be used to evaluate the hematotoxicity of anticancer agents during drug development. The bone marrow is frequently the dose-limiting organ of toxicity for anticancer and antiviral drugs and the accurate characterization of the relative hematotoxicity of these agents is important with respect to the design and development of more effective, but less toxic, drugs.

The Biology of Hemopoietic Stem Cells and Progenitor Cells, Richard D. Irons, University of Colorado Health Sciences Center, Denver, CO

Regulation of Myelopoiesis and Lymphopoiesis by Bone Marrow Stromal Cells, Kenneth Dorshkind, University of California, Riverside, CA

The Role of Xenobiotic Metabolism in Bone Marrow Toxicity, Michael Trush, The Johns Hopkins University, Baltimore, MD

***In Vitro* Methods for Evaluating the Hematotoxicity of Pharmaceutical Agents,** Dan Wierda, Eli Lilly & Company, Greenfield, IN

2. (morning) and 7. (afternoon)

Case Studies in Risk Assessment: Emphasis on Exposure

(offered both morning and afternoon)

Chairpersons: Donald H. Hughes, The Procter & Gamble Company, Cincinnati, OH, and Carol J. Henry, Risk Science Institute, International Life Sciences Institute, Washington, DC

This basic course will address the continuing interest scientists have in assessing health risks and in becoming more knowledgeable about the implications of exposures to environmental substances. Case studies will be used to demonstrate the principles and practices of risk assessment, with an emphasis on elements of exposure assessment. Determining the magnitude, frequency, duration, and route of contact with a substance in the environment is part of the overall risk analysis process, as is identifying the individuals and populations exposed under the circumstances of use of the substance. Formaldehyde, d-limonene, ethyl acrylate, and methyl mercury will be given detailed treatment to illustrate the source of the material, the ambient levels of material, the amount of material taken up by people using the material, the amount of material reaching critical target organs, and the characterization of the potential health risk from such an exposure. Conclusions and recommendations from current and ongoing risk assessments for these chemicals will be incorporated into the program.

Introduction to Risk Assessment, Carol J. Henry, Risk Science Institute, International Life Sciences Institute, Washington, DC

Principles of Exposure Assessment: Consumer Use of Solvents, Michael Callahan, USEPA, Washington, DC

Physiologically-Based Pharmacokinetic Modeling for Ethyl Acrylate and Its Implications for Route-to-Route Extrapolation of Risk, Clay B. Frederick, Rohm & Haas Company, Spring House, PA

Methyl Mercury in California Lakes—Assessing the Health Risk from Contaminated Sport Fish, James W. Stratton, California Department of Health Services, Sacramento, CA,

Use of Mechanistic Data in the Risk Assessment of Formaldehyde, Thomas Starr, Environ Corporation, Arlington, VA

Risk Assessment of d-Limonene, Representing Chemicals that Induce Alpha-2u-Globulin Nephropathy and Renal Tumors in Male Rats, Gordon Hard, American Health Foundation, Valhalla, NY

3. Development and Safety Evaluation of Recombinant Products for Pharmaceutical and Agricultural Use

Chairperson: William F. Greenlee, Purdue University, West Lafayette, IN

This basic course is intended to provide the student with increased knowledge and understanding of the scientific basis and regulatory issues relevant to biotechnology products. The advancement of biotechnology has led to the development of many exciting products. Due in part to the rapid growth of the field and the unique character of some of the products produced by the genetically-engineered organisms, regulatory agencies accustomed to evaluating chemicals or pharmaceutical agents are presented with significant challenges when asked to assess and quantitate the potential human health risks associated with the use of biotechnology products. The first lecture will focus on the differences between development programs involving xenobiotics versus protein therapeutics. Through the use of case studies involving recombinant DNA molecules, the interactive and complementary roles of regulatory and experimental toxicology will be presented. An important component in safety evaluation is the acquisition of knowledge of biomacromolecule pharmacokinetic behavior across species. The second lecturer will discuss the use of this information for extrapolating preclinical safety and efficacy data to establish doses in clinical studies on the basis of pharmacokinetic equivalence rather than body weight. The third lecture will present the regulatory perspective, focusing on the issues and scientific needs relevant to human risk assessment of biomacromolecules. The final lecture will be on the development of biotechnology products in plant agriculture. This lecture will emphasize the evolving regulatory structure for these products.

Pharmaceutical Toxicology, James D. Green, Genentech, Inc., South San Francisco,CA

The Role of Pharmacokinetics in the Design of Toxicology Studies, Joyce Mordenti, Genentech, Inc., South San Francisco, CA

Regulatory Issues Associated with Preclinical Safety Evaluation of Biotechnology Products, Joy Cavagnaro, Center for Biologics Evaluation and Research, FDA, Bethesda, MD

Evolving Regulatory Structures for Biotechnology in Plant Agriculture, Alan Gould, DowElanco, Midland, MI

4. (morning) and 9. (afternoon)

Implementing Physiologically-Based Pharmacokinetic Models—Interactive Computer Session

(offered both morning and afternoon)

Chairperson: Michele A. Medinsky, Chemical Industry Institute of Toxicology, Research Triangle Park, NC

The objectives of this basic course are to provide attendees with "hands-on" computer experience and to permit implementation of basic concepts in physiologically-based pharmacokinetic (PBPK) modeling. Course lecturers will guide the attendees through the exercises as a group and will provide individual consultations as needed. The first exercise will focus on the writing and running of PBPK models on the computer. The computer code and equations for setting up a model for a volatile organic chemical will be used as a starting point. The second exercise will involve adapting the model to simulate oral, as well as inhalation, exposure. Effect of altered gastrointestinal absorption on model simulations will be explored. The third exercise will focus on estimation of metabolic parameters (Vmax, Km, and Kf) using the model and *in vivo* data sets. The fourth exercise will go beyond a single exposure and attendees will learn how to alter model code to perform simulations of chemical behavior over a range of doses to generate "dose-response" curves. The final exercise will introduce concepts and computer code describing chemical-protein binding. Binding constants that best describe a data set will be determined and a simple form of response modeling involving protein induction will be explored.

Writing and Running a PBPK Model for Volatile Organic Chemicals on the Computer, Rory B. Conolly, Chemical Industry Institute of Toxicology, Research Triangle Park, NC

Incorporating an Oral Exposure Route into a PBPK Model for Inhalation, Richard H. Reitz, The Dow Chemical Company, Midland, MI

Determining *In Vivo* Metabolic Parameters Using PBPK Models, Michael L. Gargas, Chemical Industry Institute of Toxicology, Research Triangle Park, NC

Setting Up Models for Evaluating Dose-Response Relationships, Harvey Clewell, III, ASD/SEH, Wright Patterson AFB, OH

Accounting for Chemical-Protein Binding and Induction of Protein Synthesis in PBPK Models for Dioxin, Melvin E. Andersen, Chemical Industry Institute of Toxicology, Research Triangle Park, NC

5. Liver Toxicology

Chairperson: Harihara M. Mehendale, University of Mississippi Medical Center, Jackson, MS

The objective of this basic course is to provide an overview of the physiological, biochemical and histopathological

mechanisms of liver injury. The first lecture will cover aspects of liver structure, physiology and function, that influence the responses of the liver to chemical toxins. These aspects include hepaticorganization into functional units, dual blood supply, acinar oxygen gradients, and enterohepatic circulation. Ammonia detoxification will be described as an example of how the heterogeneous distribution of transport proteins and enzymes along the acini allow the liver to fine tune the removal of an endogenous waste product. The second lecture will focus on the role of mammalian cytochrome P-450 enzymes in the bioactivation and inactivation of xenobiotics. Experimental approaches for determining the role of individual cytochrome P-450 enzymes in the bioactivation and detoxication reactions in experimental animals and in humans will be emphasized. The third lecture will provide an overview of hepatobiology and the role of nonparenchymal cells in liver injury. The interactive role of endothelial, fat-storing, Kupffer, Pit, and bile duct epithelial cells will be considered, along with their reactive mediators and cytokines. The fourth lecture will focus on the mechanisms of liver injury. Experimental approaches employed in studying mechanisms of liver injury caused by single or chemical combinations and the role of endogenous hormetic mechanisms will be discussed.

Structure, Physiology and Liver Function, Mary Treinen Moslen, University of Texas Medical Branch, Galveston, TX

Role of Cytochromes P-450 in Bioactivation and Detoxication, James R. Halpert, University of Arizona, Tucson, AZ

Nonparenchymal Cells and Hepatotoxicity, Debra L. Laskin, Rutgers University, Piscataway, NJ

Hepatotoxic Mechanisms, Harihara M. Mehendale, University of Mississippi Medical Center, Jackson, MS

6. (morning) and 10. (afternoon)

Molecular Control of Cell Proliferation

(offered both morning and afternoon)

Chairperson: David J. Doolittle, RJR-Nabisco, Winston-Salem, NC

The objective of this advanced course is to provide a state-of-the-art update on selected aspects of the signal transduction pathways controlling cell proliferation. Emphasis will be placed on growth factors and their receptors and on intracellular calcium fluxes. Rates of DNA synthesis and cell proliferation in mammalian tissues are controlled by intracellular molecular signal transduction pathways. Xenobiotic-induced disruption of these pathways is likely to result in toxicity. Chemical agents may affect intracellular signal transduction either directly (e.g. by altering intracellular calcium homeostasis) or indirectly (e.g. by altering extracellular growth factor concentrations). Substantial evidence indicates that increases in cell proliferation may play an important causal role in chemical carcinogenesis. Some components of the signal transduction pathways controlling cell proliferation are coded by genes termed proto-oncogenes and tumor suppressor genes. Since current evidence suggests that critical alterations in these genes may lead to uncontrolled DNA synthesis and cell proliferation, the biology of these genes will be discussed. Finally, the evidence suggesting a causal role for increased cell proliferation in chemical carcinogenesis will be reviewed.

Overview of Cellular Signal Transduction, David Doolittle, RJR-Nabisco, Winston-Salem, NC

Role of Ionized Cytosolic Calcium in Cell Proliferation and Differentiation, Benjamin Trump, University of Maryland, Baltimore, MD

Role of Growth Factors and Growth Factor Receptors in the Control of Cell Proliferation, David Bombick, RJR-Nabisco, Winston-Salem, NC

The Biology of Oncogenes and Tumor Suppressor Genes, Cheryl Walker, CIIT, Research Triangle Park, NC

The Importance of Cell Proliferation in Carcinogenesis, Bruce Ames, University of California-Berkeley, Berkeley, CA

1:30 pm–5:30 pm

8. Developmental Toxicity: Cellular and Molecular Approaches

Chairperson: George P. Daston, The Procter & Gamble Company, Cincinnati, OH

The objective of this advanced course is to describe the application of recent advances in biochemistry and cellular and molecular biology to specific problems in developmental toxicology. The impact of these new techniques on our understanding of teratogenesis, improving the sensitivity of developmental toxicity assessments, and in predicting human health effects is likely to be significant. The first lecture will describe the use of molecular techniques, including Western blotting, Northern blotting, two-dimensional gel electrophoresis, *in situ* hybridization, and transgenic animals, to detect chemically or physically induced changes in gene expression during development. The second lecture will describe recent advances in understanding the role of homeotic gene expression and morphogenetic gradients in establishing patterns in the embryo. The adverse effects of retinoic acid will be used to illustrate the role of these processes in normal and abnormal development. The third lecture will describe the use of cellular techniques to study mechanisms of abnormal development, including cell cycle analysis and vital staining, characterization of receptor expression, and model cellular systems. The fourth lecture will describe the role of xenobiotic metabolism, both embryonic and extra-embryonic, in abnormal development. The role of bioactivation, detoxification and elimination in susceptibility of humans and ani-

mals to teratogens such as anticonvulsants, benzo(a)pyrene and thalidomide will be discussed.

Molecular Approaches in Abnormal Development, Philip E. Mirkes, University of Washington, Seattle, WA
Homeotic Gene Expression and Teratogenesis, Joseph F. Grippo, Hoffmann-La Roche, Nutley, NJ
Cellular Techniques in Developmental Toxicology, John M. Rogers, U.S. Environmental Protection Agency, Research Triangle Park, NC
The Role of Metabolism in Chemical Teratogenesis, Peter G. Wells, University of Toronto, Toronto, Ontario

11. Renal Toxicology

Chairperson: Lois Lehman-McKeeman, The Procter & Gamble Company, Cincinnati, OH

The objective of this basic course is to provide an overview of the susceptibility of the kidney to injury, the kinds of chemicals that are nephrotoxic, and the mechanisms underlying the development of the toxicity. Special emphasis will be placed on species differences in nephrotoxicity and how these differences influence reliable extrapolation across species. The first lecture will discuss the anatomical and physiological features that influence toxicological events in the kidney. Activities associated with nephron heterogeneity will be highlighted. Routine tests of renal function, along with newer approaches, will also be discussed. The nephrotoxicity of therapeutic agents, including antibiotics, anti-neoplastic drugs and analgesics will be presented by the second lecturer, highlighting the functional deficits observed clinically and experimentally. This lecture will also discuss current understanding of pathophysiological/biochemical mechanisms of drug-induced nephrotoxicity. The third lecture will focus on nephrotoxic agents of environmental concern, such as heavy metals, halogenated hydrocarbons, agricultural chemicals and petroleum products. Structure-nephrotoxicity relationships will be discussed for the halogenated alkenes. The fourth lecture will discuss key factors that contribute to species differences in nephrotoxicity, including contrasts in renal structure and function, and renal and extra-renal metabolism. The role of these differences in extrapolation from laboratory animals to humans will be considered.

Renal Anatomy, Physiology and Functional Assessment, William O. Berndt, University of Nebraska Medical Center, Omaha, NE
Therapeutic Nephrotoxicants, Robin S. Goldstein, SmithKline Beecham Pharmaceuticals, King of Prussia, PA
Environmental Nephrotoxicants, Gary O. Rankin, Marshall University School of Medicine, Huntington, WV
Species Differences in Nephrotoxicity, Edward A. Lock, ICI Corporation, Macclesfield, Cheshire, UK

12. Toxicity of Halogenated Hydrocarbons

Chairman: Philip G. Guzelian, Medical College of Virginia, Richmond, VA

This basic course is designed to describe and explain the types of toxicities induced by the alkane and alkene halogenated hydrocarbons. Hepatic and renal toxicity have long been documented as prominent effects induced by many of these halogenated hydrocarbons; these classic responses will be detailed by the first speaker. The second speaker will discuss the biochemical mechanisms responsible for the damage to the liver and kidney, with particular reference to the interactions these compounds have within cells. Next, the cytochrome P450 enzymes implicated in bioactivating these halogenated hydrocarbons to their toxic metabolites will be described, including the characteristics of the enzyme and the nature of the bioactivation reaction. Lastly, methods used to identify tissue targets of the reactive metabolites will be described. Binding sites for the activated metabolites can be identified immunochemically to aid in the characterization of the halogenated hydrocarbon-induced toxicity and the mechanisms responsible for this toxicity.

Halogenated Hydrocarbon Toxicity: An Overview, Gabriel Plaa, University of Montreal, Montreal, Quebec, Canada
Bioactivation of Halogenated Hydrocarbons by Cytochrome P450 Enzymes, Judy Raucy, University of New Mexico, Albuquerque, NM
Biochemical Mechanisms and Cellular Interactions, M. W. Anders, University of Rochester, Rochester, NY
Immunochemical Techniques for Determination of Tissue Targets of Reactive Metabolites of Halogenated Hydrocarbons, Lance Pohl, National Heart, Lung and Blood Institute, Bethesda, MD

1993 ANNUAL MEETING

March 14-18
New Orleans Convention Center
New Orleans, Louisiana

SUNDAY, FEBRUARY 23
2:00 p.m.–5:30 p.m.
SHERATON HOTEL-METROPOLITAN BALLROOM

SOT MINORITY STUDENT PROGRAM

Chairperson: Stephen H. Safe, Texas A&M University, College Station, TX

SOT members, graduate students, and others interested in toxicology education and early recruitment of minorities are invited to attend this program, which is sponsored by the SOT Education Committee.

2:00	Welcome. Stephen Safe, Texas A&M University, College Station, TX; Chairman, SOT Education Committee
2:05	What is Toxicology? Harihara M. Mehendale, University of Mississippi Medical Center, Jackson, MS
2:20	Toxicologists in Government and Career Progressions in Science. Faye Calhoun, National Institutes of Health, Division of Research Grants, Bethesda, MD
2:30	Toxicology Activities and Opportunities in Academia. Daniel Acosta, University of Texas, Austin, TX
2:40	Toxicology and Veterinary Medicine Activities in Industry: Research and Regulatory Support. Ethel Cormier, The Procter & Gamble Company, Cincinnati, OH
2:50	Interaction of Veterinary Medicine with Toxicology and Other Research Activities in Industry. Diane Garnes, Ciba-Geigy Corporation, Basel, Switzerland
3:00	Is There Life After Graduate School? Mark A. Nelson, University of Arizona, Tucson, AZ
3:10	Discussion
3:40	Refreshment Break. Informal Gatherings
4:00	Keynote Presentation. Regulation of Gene Expression by Xenobiotics. Cecil B. Pickett, Merck Frostt Center for Therapeutic Research, Montreal, Canada
5:00	Informal Gatherings

SUNDAY, FEBRUARY 23
5:30 p.m.–6:30 p.m.
CONVENTION CENTER-ROOM 612

PLACEMENT SERVICE SEMINAR

Chairperson: Gisela Witz, Co-Director, SOT Placement Service

A panel of guest speakers will present their views on the present and future career opportunities and necessary requirements for entry into areas of academic, industrial, and governmental toxicology. The speakers will also present an overview of what an employer looks for in a candidate interview, an employer's expectations of job performance, and the potential financial remunerations. A professional career planner will address strategies and approaches and some of the mechanics of pursuing the position for which a candidate is best suited.

SUNDAY, FEBRUARY 23
6:30 p.m.–8:00 p.m.
CONVENTION CENTER-BALLROOM 6E

WELCOMING RECEPTION

Open to all registrants and guests. Drink tickets for the reception will be available for purchase outside Convention Center Ballroom 6E at 5:30 p.m. Additional tickets will be sold during the reception at booths next to each of the bars located throughout the Ballroom.

MONDAY MORNING, FEBRUARY 24
8:30 a.m.–11:30 a.m.
CONVENTION CENTER—BALLROOM 6A

SYMPOSIUM: GONADAL CONTROL, GROWTH FACTORS, AND TUMORIGENESIS AND THEIR IMPLICATIONS IN RISK ASSESSMENT

Sponsored by the Reproductive and Developmental and Carcinogenesis Specialty Sections

Chairperson: James C. Lamb, IV, Jellinek, Schwarz, Connolly & Freshman, Washington, DC, Robert Elliot Chapin, NIEHS, Research Triangle Park, NC, and Dharm V. Singh, USEPA, Washington, DC

Gonadal tumors are a manifestation of reproductive toxicity and are common in long-term toxicity studies. The unexplained appearance of a tumor in animal studies requires a great deal of resources to address the relevance of the finding to humans, and thus, the safety of the chemical being tested. Regulatory agencies are looking closely at assessing risks for endocrine-derived tumors (e.g., EPA and thyroid tumors) differently from other tumors. Gonadal tumors are only beginning to receive experimental attention. Previous efforts to explain gonadal tumors have focused largely on the

gonadotropins and have been moderately successful in explaining the appearance of these unique tumors. As our knowledge about intragonadal growth regulators increases, it becomes more plausible to investigate the involvement of these paracrine mediators in the tumorigenic process. The talks in this symposium will review the state of our knowledge about cell control and growth factor actions in both the ovary and the testis. The symposium will link the knowledge of gonadal control to what is currently known about mechanisms of testicular and ovarian tumorigenesis and their relevance to humans.

#1	8:30	**GONADAL CONTROL, GROWTH FACTOR, AND TUMORIGENESIS AND THEIR IMPLICATIONS IN RISK ASSESSMENT: INTRODUCTION.** *R E Chapin.* NIEHS, Research Triangle Park, NC.
#2	8:35	**PARACRINE CONTROL OF TESTICULAR FUNCTION.** *J J Heindel.* Developmental and Reproductive Toxicology Group, NTP, NIEHS, Research Triangle Park, NC.
#3	9:15	**RAT LEYDIG CELL TUMORS INDUCED BY XENOBIOTICS: ETIOLOGY AND POSSIBLE MECHANISMS.** *P M D Foster.* ICI Central Toxicology Laboratory, Macclesfield, UK.
#4	9:55	**GROWTH FACTORS AND OVARIAN FUNCTION.** D W Schomberg. Departments of Obstetrics, Gynecology and Cell Biology, Duke University Medical Center, Durham, NC.
#5	10:35	**ENDOCRINE MECHANISMS OF OVARIAN TUMORIGENESIS.** W G Beamer. Jackson Laboratory, Bar Harbor, ME.
#6	11:15	**ENDOCRINE TUMORIGENESIS AND THE IMPLICATIONS IN RISK ASSESSMENT.** *J C Lamb.* Jellinek, Schwartz, Connolly & Freshman, Washington, DC.

MONDAY MORNING, FEBRUARY 24
8:30 a.m.–11:30 a.m.
CONVENTION CENTER—BALLROOM 6C

SYMPOSIUM: RISK ASSESSMENT OF CHEMICAL MIXTURES: BIOLOGIC AND TOXICOLOGIC ISSUES

Chairpersons: Moiz Mumtaz, USEPA, Cincinnati, OH and Raymond S.H. Yang, Dept. of Environmental Health, Colorado State University, Fort Collins, CO

Health risk assessment of exposure to chemical mixtures is presently based on limited available data. It is not surprising, then, that methodologies and risk estimates are variable and may be easily criticized. This symposium is an overview of mixtures research that captures the current issues of interactive toxicity and points out its impacts on the risk assessment of chemical mixtures through a progression of conceptual, experimental and real life situations. An understanding of the definitions, the terms in vogue, and the issues pertinent to chemical mixtures research is prudent. Progress towards defining the mechanisms of interactions and dose-response relationships is being achieved through several well designed recent studies with some utilizing short term and *in vitro* methods. Detailed data thus obtained have made possible, limited but significant, PB-PK modeling efforts to predict interactions. Toxicity information available on specific examples of simple, complex and synthetic chemical mixtures demonstrates how whole mixtures cause injury. Current risk assessment guidance promotes consistency and reproductibility; however several data gaps need to be filled to increase the accuracy of risk assessments.

#7	8:30	**RISK ASSESSMENT OF CHEMICAL MIXTURES: BIOLOGIC AND TOXICOLOGIC ISSUES; INTRODUCTION.** *M M Mumtaz.* Office of Research and Development, E.C.A.O., US EPA, Cincinnati, OH.
#8	8:35	**MECHANISMS OF TOXICANT INTERACTIONS.** *I G Sipes.* Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.
#9	9:05	**IDENTIFICATION AND CHARACTERIZATION OF TOXICANT INTERACTIONS *IN VITRO*.** *J G Pounds.* Institute of Chemical Toxicology, Wayne State University, Detroit, MI.
#10	9:35	**PHYSIOLOGICALLY-BASED PHARMACOKINETIC (PB-PK) MODELING OF MIXTURES.** H J Clewell (a), *M L Gargas* (b), and *M E Anderson* (b). (a) Toxic Hazards Division, Wright-Patterson AFB, OH, (b) Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
#11	10:05	**TOXICOLOGY OF CHEMICAL MIXTURES.** *R S H Yang.* Department of Environmental Health, Colorado State University, Ft. Collins, CO.
#12	10:35	**THE US EPA GUIDELINES AND CURRENT ISSUES OF THE HEALTH RISK ASSESSMENT OF CHEMICAL MIXTURES.** *M M Mumtaz.* Office of Research and Development, Environmental Criteria and Assessment Office, US EPA, Cincinnati, OH.

MONDAY MORNING, FEBRUARY 24
8:30 a.m.–11:00 a.m.
CONVENTION CENTER—ROOM 607

PLATFORM SESSION: METAL TOXICOLOGY

Chairpersons: Ellen K. Silbergeld, University of Maryland, Baltimore, MD and Arthur Furst, University of San Francisco, San Francisco, CA

#13	8:30	**METAL INDUCED CHANGES IN CELLULAR ACID SOLUBLE NUCLEOTIDE POOLS IN 3T3 CELLS.** S Thorgeirsdottir, *G Andry* and *I N Chou.* Departments of Microbiology and Pathology, Boston University School of Medicine, Boston, MA.

#14 8:45 **EFFECT OF NEW DIMERCAPTOSUCCINIC ACID (DMSA) ANALOGUES IN ACUTE ARSENIC TRIOXIDE POISONING IN MICE.** H Kreppel, U Paepcke, H Thiermann, F X Reichl, *P K Singh and **MM Jones*. Inst. Pharmakologie und Toxikologie, Sanitatsakademie Munchen, FRG; *Dept. Chem., Vanderbilt Univ., Nashville, TN.

#15 9:00 **HUMAN LYMPHOCYTE METALLOTHIONEIN GENE EXPRESSION FOLLOWING ZINC OXIDE EXPOSURE.** G N Cosma, *T Gordon*, L C Chen, J Fine,* D Currie, and *S J Garte*. Inst. of Env. Med., New York Univ. Medical Center, New York, NY; *Norwalk Hospital, CT.

#16 9:15 **THE EFFECT OF ZINC ON THE ACTIVATION OF HUMAN MONOCYTES.** M E I Leibbrandt and J Koropatnick. The London Regional Cancer Centre and Department of Pathology, University of Western Ontario, Ontario, Canada. Sponsor: *M G Cherian*.

#17 9:30 ***IN VITRO* EFFECTS OF METALS ON VARIOUS REACTIVITIES OF HUMAN PERIPHERAL BLOOD AND SPLENIC MONONUCLEAR CELLS.** *D A Lawrence* and J Salvik, Department of Microbiology and Immunology, Albany Medical College, Albany, NY.

#18 9:45 **EFFECT OF CADMIUM (Cd) ON BONE CALCIUM MAY BE LINKED TO DIFFERENCES IN DEVELOPMENT OF IMMUNE SYSTEMS.** D Hurst, N Sacco-Gibson, and *M H Bhattacharyya*. Argonne National Laboratory, Argonne, IL.

#19 10:00 **LESIONS RESEMBLING ATHEROSCLEROSIS IN CADMIUM TREATED RATS.** *M P Waalkes* and S Rehm. National Cancer Institute-FCRDC, Frederick MD.

#20 10:15 **SPECIES DIFFERENCE IN CADMIUM ACCUMULATION.** S Himeno, T Yamashita, and *N Imura*. Dept. of Public Health, School of Pharmaceutical Sciences, Kitasato University, Tokyo, Japan.

#21 10:30 **THE TIME COURSE OF LESION DEVELOPMENT IN THE RESPIRATORY TRACT OF RATS EXPOSED BY INHALATION TO NICKEL SUBSULFIDE.** *J M Benson*, Y S Cheng, *R F Henderson*, F F Hahn. Inhalation Toxicology Research Institute, Albuquerque, NM.

#22 10:45 **LEAD PERTURBS 1,25-DIHYDROXYVITAMIN D^3 MODULATION OF INTRACELLULAR CALCIUM METABOLISM IN CLONAL RAT OSTEOBLASTIC (ROS 17/2.28) CELLS.** *G J Long* and *J F Rosen*. Albert Einstein College of Medicine, Bronx, NY.

MONDAY MORNING, FEBRUARY 24
8:30 a.m.–11:15 a.m.
CONVENTION CENTER—ROOM 608

PLATFORM SESSION: POLYCYCLIC AROMATIC HYDROCARBONS: METABOLISM AND BIOLOGICAL EFFECTS

Chairpersons: William A. Toscano, University of Minnesota, Minneapolis, MN and Gary H. Perdew, Purdue University, West Lafayette, IN

#23 8:30 **JOINT EXPERIMENTAL AND MATHEMATICAL INVESTIGATION OF BENZO(A)PYRENE HEMATOTOXICITY.** S Scheding[1], V Anselstetter[2], M Loeffler[3], I N Rich[4], and H E Wichmann[1]. [1]Department of Labor Safety and Environ. Med., Univ. of Wuppertal; [2]Department of Internal Med., Univ. of Ulm; [3]Med. Clinic I, Univ. of Cologne; and [4]Department of Transfusion Med. Univ. of Ulm, Germany. Sponsor: *Z Djuric*.

#24 8:45 **1-HYDROXYPYRENE (1-OHP) EXCRETION KINETICS IN DERMAL EXPOSURE OF VOLUNTEERS TO PYRENE OR PYRENE-CONTAINING MIXTURES.** A Vyskocil, G Carrier, and *C Viau*. Dept. Med. trav. et Hyg. Milieu, Universite de Montreal, Canada.

#25 9:00 **PRODUCTS OF THE SULFITE-DEPENDENT ACTIVATION OF CYCLOPENTENO[c,d]PYRENE.** C J Coulter, J L Green, and *G A Reed*. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#26 9:15 **UDP-GLUCURONOSYLTRANSFERASE (UDP-GT) AND BENZO(A)PYRENE (BP) METABOLISM IN RAT AND RABBIT HEPATOCYTES.** J Zaleski, G Y Kwei, *R G Thurman**, and *F C Kauffman*. Rutgers University, Piscataway, NJ and *University of North Carolina,Chapel Hill, NC.

#27 9:30 **METABOLISM OF BENZO(a)PYRENE IN HUMAN HEPATAOCYTES COMPARED TO RAT HEPATOCYTES.** *S A Knadle*, *C E Green*, S E LeValley, J E Dabbs, and *C A Tyson*. Office of Environmental Health Hazard Assessment, CAL-EPA, Sacramento, CA; and SRI International, Menlo Park, CA.

#28 9:45 **BENZO(a)PYRENYL-1-SULFATE: A NOVEL MUTAGEN.** S E Irwin, G Y Kwei, *R G Thurman**, and *F C Kauffman*. Joint Graduate Program in Toxicology, NIEHS Center on Toxicology, Rutgers Univ., Piscataway, NJ and *Lab. Hepatobiology and Toxicology, Univ. of North Carolina at Chapel Hill, NC.

#29 10:00 **CHARACTERIZATION OF THE ARYLHYDROCARBON (Ah) RECEPTOR IN HUMAN BREAST CANCER PRIMARY TUMORS AND TRANSFORMED CELL LINES.** R J Rosengren, V Morrison, W Wang, J Kochevar and *S Safe*. Dept. of Vet. Physiol. and Pharmacol., Texas A&M University, College Station, TX.

#30 10:15 **ANTIESTROGENIC ACTIVITY OF POLYCHLORINATED BIPHENYL (PCB) CONGENERS AND MIXTURES IN MCF-7 HUMAN BREAST CANCER CELLS.** V Krishnan and *S Safe*. Dept. Physiol. and Pharmacol., Texas A&M University, College Station, TX.

#31 10:30 **ANTIESTROGENIC EFFECTS OF 3-METHYLCHOLANTHRENE IN MCF-7 HUMAN BREAST CANCER CELLS: ROLE OF THE Ah RECEPTOR.** K Chaloupka, V Krishnan and *S Safe*. Dept. Physiol and Pharmacol., Texas A&M University, College Station, TX.

#32 10:45 **DIRECT EVIDENCE THAT THE *Ah* RECEPTOR IS PHOSPHORYLATED IN HEPA 1 CELLS.** *G H Perdew*. Dept. of Foods and Nutrition, Purdue University, West Lafayette, IN.

#33 11:00 **MECHANISM OF INDUCTION OF CYP1A1 GENE EXPRESSION IN MOUSE HEPA 1c1c7 CELLS BY BENZO[a]PYRENE (BaP): ROLE OF THE Ah RECEPTOR AND 4S PROTEIN.** *M Merchant*, X Wang and *S Safe*. Dept. Physiol. and Pharmacol., Texas A&M University, College Station, TX.

MONDAY MORNING, FEBRUARY 24
8:30 a.m.–11:00 a.m.
CONVENTION CENTER—ROOM 611

PLATFORM SESSION: LOWER RESPIRATORY TRACT TOXICOLOGY

Chairpersons: Guenter Oberdoerster, University of Rochester, Rochester, NY and Kevin E. Driscoll, The Procter & Gamble Company, Cincinnati, OH

#34 8:30 **CYTOTOXIC EFFECTS OF 4-IPOMEANOL (IPO) ON RESPIRATORY CARCINOMAS OF HAMSTERS.** S Rehm[1], W Lijinsky[2], D Thomas[2], and *M P Waalkes*[1]. [1]National Cancer Institute; [2]ABL/Basic Research Program, Frederick, MD.

#35 8:45 **FUMONISIN CONTAMINATED CORN SCREENINGS: TEMPORAL AND QUALITATIVE DIFFERENCES IN THE RESPONSES OF SWINE AS A FUNCTION OF DOSE.** *V R Beasley*[1], G Motelin[2], *D N Ness*[1], W F Hall[3], K S Harlin[4], D J Schaeffer[1], and *W M Haschek*[2]. [1]Dept. of Vet. Biosci.; [2]Dept. of Vet. Pathobiol.; [3]Dept. of Vet. Clin. Med.; and [4]Lab. Vet. Diag. Med., Coll. Vet. Med., Univ. of Ill., Urbana, IL.

#36 9:00 **GAMMA-GLUTAMYLTRANSPEPTIDASE ACTIVITY IN TYPE II ALVEOLAR CELLS.** D Dinsdale, M J Lee, J Martin and I N H White. MRC Toxicology Unit, Surrey, UK. Sponsor: *L L Smith*.

#37 9:15 **COR PULMONALE IS CAUSED BY PUTATIVE MONOCROTALINE METABOLITE MCTP, BUT NOT GLUTATHIONE OR CYSTEINE CONJUGATES.** L C Pan, M W Lamé, D W Wilson, and *H J Segall*. Depts. of Pharmacology and Toxicology and Pathology, University of California/Davis, Davis, CA.

#38 9:30 **INTRACELLULAR pH REGULATION AND ACID AIR POLLUTANT TOXICITY.** B Ziegler, and *D B Menzel*. Dept. of Community and Environmental Medicine, Univ. of California, Irvine, CA.

#39 9:45 **ACIDIFICATION FAILS TO ALTER INTRACELLULAR FREE CALCIUM OF TYPE II LUNG CELLS.** *D B Menzel*, B Ziegler and S Oddo. Dept. of Community and Environmental Medicine, Univ. of California, CA.

#40 10:00 **EFFECT OF ANTIOXIDANT TREATMENT ON *IN VIVO* DEVELOPMENT OF AMIODARONE (AM)—INDUCED PULMONARY FIBROSIS IN THE HAMSTER.** R G Leeder and *T E Massey*. Depts. Pharmacology, Toxicology, and Medicine, Queen's University, Kingston, ON, Canada.

#41 10:15 **CHARACTERIZATION OF AMIODARONE-INDUCED PULMONARY TOXICITY IN FISCHER 344 RATS.** P G Reinhart, Y L Lai, and *C G Gairola*. University of Kentucky Graduate Center for Toxicology, Lexington, KY.

#42 10:30 **PULMONARY TOXICITY FOLLOWING ACUTE ARSENIC EXPOSURE.** *R C Lantz*, and *D E Carter*. Depts. of Anatomy and Pharmacology/Toxicology, Univ. of Arizona, Tucson, AZ.

#43 10:45 **ALTERATION IN COLLAGEN EXPRESSION IN MOUSE LUNG DURING RADIATION FIBROSIS.** C J Johnston, P Rubin, and *J N Finkelstein*. EHS Center, Dept. of Radiation Oncology and Dept. of Pediatrics, Univ. of Rochester School of Med. and Dent. Rochester, NY.

MONDAY MORNING, FEBRUARY 24
8:30 a.m-11:00 a.m.
CONVENTION CENTER—ROOM 605

POSTER DISCUSSION SESSION: PEROXISOME PROLIFERATION: EFFECTS AT THE CELLULAR LEVEL

Chairpersons: Carson C. Conaway, American Health Foundation, Valhalla, NY and Thomas L. Goldsworthy, CIIT, Research Triangle Park, NC

Displayed: 8:30 a.m.–11:30 a.m.
Discussion: 9:30 a.m.–11:30 a.m.

#44 **COMPARISON OF THE EFFECTS OF WYETH-14,643 (WY) IN FISHER-344 (F344) AND Crl: CDBR (CD) RATS.** *L B Biegel, M E Hurtt*, S R Frame, M Applegate, J C O'Connor and *J C Cook*. The Du Pont Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#45 **COMPARISON OF THE HEPATIC EFFECTS OF NAFENOPIN, METHYLCLOFENAPATE, WY-14,643 AND CLOFIBRIC ACID ON PEROXISOME PROLIFERATION, CELL REPLICATION AND LIVER TUMOUR FORMATION IN THE RAT.** J G Evans, R J Price, and *B G Lake*. BIBRA Toxicology International, Carshalton, Surrey, England.

#46 **COMPARISON OF THE HEPATIC EFFECTS OF NAFENOPIN AND WY-14,643 ON PEROXISOME PROLIFERATION, AND CELL REPLICATION IN THE SYRIAN HAMSTER.** *B G Lake*, R J Price, and J G Evans. BIBRA Toxicology International, Carshalton, Surrey, England.

#47 **THE EFFECT OF CHRONIC TREATMENT WITH CIPROFIBRATE (CP) ON MARMOSET LIVER.** M J Graham, S A Wilson, A J Spencer, J A Rees, S L Old, *J H Dean* and F W Bonner. Drug Safety Assessment, Sterling Research Group, Alnwick, Northumberland, UK.

#48 **COMPARISON OF NAFENOPIN-INDUCED HEPATIC PEROXISOME PROLIFERATION AND CELL REPLICATION IN RATS FED ADEQUATE OR VITAMIN E AND SELENIUM DEFICIENT DIETS.** R J Price, J G Evans, D G Walters, and *B G Lake*. BIBRA Toxicology International, Carshalton, Surrey, England.

#49 **INDUCTION OF PEROXISOMAL β-OXIDATION IN CULTURED RAT HEPATOCYTES AND *IN VIVO* BY IBUPROFEN (IBU).** *P S Foxworthy* and *P Eacho*. Toxicology Div., Lilly Research Labs, Greenfield, IN.

#50 **CIPROFIBRATE ALTERS ENDOPLASMIC RETICULUM Ca^{2+}-ATPase THIOL GROUPS—A POSSIBLE MECHANISM FOR CIPROFIBRATE-INDUCED Ca^{2+} MOBILIZATION.** *A M Bennett*, and *G M Williams*. American Health Foundation, Valhalla, NY.

#51 **REGULATION OF HEPATIC INOSITOL TRISPHOSPHATE RECEPTORS BY PEROXISOME PROLIFERATORS.** [1]J Youssef, [1]O Igwe, [2]*M Cunningham* and [1]*M Badr*. [1]University of Missouri, Kansas City, MO; and [2] Experimental Toxicology Branch, National Institute of Environmental Health Sciences, RTP, NC.

#52 **INVESTIGATION OF AMMONIUM PERFLUOROOCTANOATE EFFECT ON HORMONE LEVELS AND PEROXISOMAL PROLIFERATION IN THE RAT.** *R G Perkins*. 3M Medical Dept/Toxicology Services, St. Paul, MN.

#53 **PERFLUORODECANOIC ACID (PFDA) IS A NONCOMPETITIVE INHIBITOR OF THE PEROXISOMAL BIFUNCTIONAL PROTEIN.** T Borges, *H P Glauert*, and *L W Robertson*. Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN and Graduate Center for Toxicology and Department of Nutrition and Food Science, University of Kentucky, Lexington, KY.

#54 **INDUCTION OF ACYL-CoA BINDING PROTEIN AND FATTY ACID-BINDING PROTEIN IN RAT HEPATOCYTES BY THE PEROXISOME PROLIFERATORS PERFLUORODECANOIC ACID AND CLOFIBRIC ACID.** J P Vanden Heuvel, D J Nesbit, P F Sterchele and *R E Peterson*. Environmental Toxicology Center and School of Pharmacy, University of Wisconsin, Madison, WI.

#55 **URINARY EXCRETION OF l-CARNITINE IN PERFLUORODECANOIC ACID TREATED RATS.** G J Harvey, W J Schmidt and M E George. Toxicology Division (OL-AL/OET), Armstrong Laboratory, WPAFB, OH. Sponsor: *S R Channel*.

#56 **^{31}P-NMR OF ALTERED HEPATIC PHOSPHOLIPIDS FOLLOWING EXPOSURE TO THE PEROXISOME PROLIFERATOR PERFLUORO-N-DECANOIC ACID.** B M Jarnot[1,2], C M Goecke[2], and N V Reo[2]. [1]Toxicology Division, Armstrong Lab, WPAFB, OH; [2]Dept. of Biochemistry/Kettering-Scott Magnetic Resonance Lab, Wright State University, and Kettering Medical Center, Kettering, OH. Sponsor: *J N McDougal*.

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—ROOM 609

POSTER DISCUSSION SESSION: DELAYED NEUROPATHY

Chairperson: Lewis L. Smith, MRC Toxicology Unit, Surrey, England

Displayed: 8:30 a.m.–11:30 a.m.
Discussion: 9:30 a.m.–11:30 a.m.

#57 **ISOLATION AND CHARACTERIZATION OF NEUROPATHY TARGET ESTERASE.** C E Mackay, T C Thomas, A Sze'ka'cs, T Hang, *B D Hammock*, M G McNamee and *B W Wilson*. Depts. of Avian Science, Entomology and Biochemistry, University of California, Davis, CA.

#58 **ORGANOPHOSPHATE-INDUCED DECREASE OF OXYGEN CONSUMPTION IN EMBRYONIC CHICKEN BRAIN AGGREGATING CELL CULTURES: ULTRASTRUCTRUAL AND BIOCHEMICAL CHANGES.** C H Liu, R J Higgins, *B W Wilson*, and K A Funk. Univ. of California/Davis, Davis, CA.

#59 **SENSITIVITY OF SPINAL CORD ESTERASES OF HENS AND RATS ADMINISTERED PESTICIDES THAT CAUSED AND DID NOT CAUSE ORGANOPHOSPHORUS ESTER INDUCED DELAYED NEUROPATHY (OPIDN).** *M Ehrich*, *B S Jortner*, and *S Padilla**. Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA, and *US EPA, Research Triangle Park, NC.

#60 **PROMOTION OF NON-ORGANOPHOSPHATE INDUCED NEUROPATHIES IN THE RAT.** D E Ray and M K Johnson. MRC Toxicology Unit, Carshalton, Surrey, UK. Sponsor: *L L Smith*.

#61 **COMPARATIVE ACTIVITY OF SINGLE AND MULTIPLE DOSES OF TRIORTHOCRESYLPHOSPHATE (TOCP) IN THE SUPPRESSION OF NEUROTOXIC ESTERASE (NTE) ACTIVITY IN HEN BRAIN.** E M Furedi, J B Harder, J D TerMolen, M A Cahill, and *D L McCormick*. ITT Research Inst., Chicago, IL.

#62 **SELECTIVE INHIBITION OF NEUROPATHY TARGET ESTERASE (NTE) BY A NEW CLASS OF CARBAMATES.** J C Randall, J L Ambroso, *W C Groutas, *M J Brubaker, and *R J Richardson*. Toxicology Program, The University of Michigan, Ann Arbor, MI, and *Department of Chemistry, Wichita State University, Witchita, KS.

#63 **ORGANOPHOSPHORAMIDATION OF NEUROPATHY TARGET ESTERASE (NTE) IS SUFFICIENT TO INITIATE DELAYED NEUROPATHY (DN) WITHOUT THE NECESSITY OF AN "AGING" REACTION.** M K Johnson and *J M Safi. MRC Toxicology Unit, Surrey, UK. *Hebron Univ., West Bank, Via Israel. Sponsor: *L L Smith*.

#64 **PROTEOLYTIC CLEAVAGE OF NEUROPATHY TARGET ESTERASE.** P Glynn, M Ruffer-Turner, D Read, S Wylie and M K Johnson. MRC Toxicology Unit, Surrey, UK. Sponsor: *L L Smith*.

#65 **COMPARISON OF THE EFFECTS OF PHENYLMETHYLSULFONYL FLUORIDE (PMSF) ON ORGANOPHOSPHORUS-INDUCED DELAYED NEUROTOXICITY (OPIDN) IN YOUNG AND ADULT CHICKENS.** M L Chapman, D Tanaka,Jr.[1], and *C N Pope*. Sch. Pharm., Northeast LA Univ., Monroe, LA and [1]Dept. Anatomy, Michigan St. Univ., E. Lansing, MI.

#66 **THE NEUROPATHIC PLAQUE. A HEN BACKGROUND LESION OF IMPORTANCE WHEN EVALUATING ORGANOPHOSPHORUS ESTER INDUCED DELAYED NEUROPATHY (OPIDN).** S K Perkins, *B S Jortner, M Ehrich*. Virginia Tech, Blacksburg, VA.

#67 **THE CLINICAL EXPRESSION OF ORGANOPHOSPHATE INDUCED DELAYED POLYNEUROPATHY (OPIDP) IN RATS IS AGE-DEPENDENT.** A Moretto, E Capodicasa, *M Lotti*. Istituto di Medicina del Lavoro, Universita di Padova, Padua,.

#68 **INHIBITION AND AGING OF ACETYLCHOLINESTERASE IN CENTRAL AND PERIPHERAL TISSUES FOLLOWING A SINGLE EXPOSURE TO CHLORPYRIFOS.** *R L Carr*, and *J E Chambers*. College of Veterinary Medicine, Mississippi State University, Mississippi State, MS. (This abstract will be presented as *#1262A* on Wednesday afternoon in the Neurotoxicology II Poster Session.)

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: IMMUNOTOXICOLOGY I

Chairpersons: Judith T. Zelikoff, New York University Medical Center, Tuxedo, NY and Thomas T. Kawabata, The Procter & Gamble Company, Ross, OH

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 8:30 a.m.–10:00 a.m.

#69 **COMPARISON OF THE EFFECTS OF 2,3,7,8-TCDD ON IMMUNOCOMPETENCE AND EROD INDUCTION IN MURINE AND HUMAN LYMPHOCYTES.** S C Wood, H G Jeong*, D L Morris, J G Karras, and *M P Holsapple*. MCV/VCU, Richmond, VA and *KAIST, Seoul, Korea.

#70 **ALTERATIONS IN T CELL RECEPTOR SIGNAL TRANSDUCTION INDUCED BY 7,12-DIMETHYLBENZ(A)-ANTHRACENE (DMBA) IN THE HPB-ALL HUMAN T CELL LINE.** M M Archuleta, J A Ledbetter, and *S W Burchiel*. The Univ. of New Mexico College of Pharmacy,Toxicology Program, Albuquerque, NM; and the Oncogen Division of Bristol-Myers Squibb, Seattle, WA.

#71 **IMMUNOLOGIC EFFECTS OF VITAMIN E AND SELENIUM DEFICIENCY IN MURINE AND OVINE MODELS.** M S Mostrom, B R Blakely and *R W Coppock*. Tox. Res. Group, Univ. Saskatchewan, Saskatoon, and AB Environ. Centre, Vegreville, Canada.

#72 **THE EFFECT OF CARBON TETRACHLOLRIDE ON THE PHENOTYPIC COMPOSITION OF B6C3F1 MOUSE SPLEEN CELLS.** B Delaney, and *N Kaminski*. Department of Pharmacology and Toxicology, Medical College of Virginia/VCU, Richmond, VA.

#73 **COMPARISON OF THE SENSITIVITY BETWEEN HUMAN AND RODENT LYMPHOCYTES ON *IN VITRO* PROLIFERATIVE RESPONSES TO VARIOUS CHEMICALS.** D S Lang, *M I Luster*. Immunotoxicology Group, NIEHS, RTP, NC.

#74 **EFFECTS OF STYRENE INHALATION ON IMMUNE FUNCTION,** E Corsini, W A Craig, *D L Morgan*, *M I Luster*, and *G J Rosenthal*, National Institute of Environmental Health Science, RTP, NC.

#75 ***IN VIVO* AND *IN VITRO* EVALUATION OF DRUG INDUCED TOXIC EFFECTS ON THE IMMUNE SYSTEM. IMPLICATIONS IN IMMUNOTOXICOLOGY.** H N Lebrec[1,2], C Blot[1,2], C Bohuon[1,2], and *M J Pallardy*[1,2]. [1]Laboratoire de Toxicologie, Faculté de Pharmacie Paris XI, Chatenay-Malabry, France; [2]Laboratoire de Biochimie B, Institut G. Roussy, Villejuif, France.

#76 **INFLUENZA VIRUS-SPECIFIC ANTIBODY AND ANTIBODY SECRETING CELL (ASC) RESPONSE FOLLOWING INTRANASAL ADMINISTRATION OF INFLUENZA VIRUS.** D L Neldon-Ortiz and *G R Burleson*. Environmental Toxicology Division, Health Effects Research Laboratory, US EPA, RTP, NC.

#77 **T-2 TOXIN REDUCES ANTIGEN PRESENTATION BY EPIDERMAL LANGERHANS CELLS AND INHIBITS THE CONTACT HYPERSENSITIVITY REACTION IN MICE.** B L Blaylock, Y Kouchi, C E Comment and *M I Luster*. Immunotoxicology Group, Systems Toxicity Branch, NIEHS, RTP, NC.

#78 **GUINEA PIGS EXHIBIT EXTENDED LATENCY PERIOD FOR THE DEVELOPMENT OF SENSITIVITY TO AN AMINE.** J C Stadler and *S E Loveless*. E.I. duPont de Nemours and Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#79 **EFFECT OF CHLOROQUINE ON THE FORMATION OF HALOTHANE-INDUCED LIVER ANTIGENS IN GUINEA PIGS: A TOOL TO INVESTIGATE IMMUNE-MEDIATED TOXICITY.** J B Clark, M L Chen, and *A J Gandolfi*. Department of Anesthesiology, University of Arizona, Tucson, AZ.

#80 **COVALENT BINDING OF A HALOTHANE BIOTRANSFORMATION INTERMEDIATE TO A 27 KD CYTOSOLIC PROTEIN IN GUINEA PIG AND LIVER SLICES.** A P Brown, *K L Hastings*, *A J Gandolfi*, *K Brendel*. Department of Anesthesiology, University of Arizona, Tucson, AZ.

#81 **ACUTE AND 9-DAY REPEATED VAPOR EXPOSURE TOXICITY OF TETRAMETHYLBUTANEDIAMINE (TMBDA) IN RATS.** *B Ballantyne*, *J D Sun*, D J Nachreiner, *R C Myers*, D A Neptun, and R H Garman[1]. Bushy Run Research Center/Union Carbide Chemicalsand Plastics Company, Inc., Export, PA. [1]Consultants in Veterinary Pathology, Murrysville, PA.

#82 **A STUDY OF THE SEX-RELATED DIFFERENCES ASSOCIATED WITH TRIMELLITICANHYDRIDE (TMA)-INDUCED RESPIRATORY SENSITIZATION IN RATS.** *B M Ryan*, *N S Hatoum*, R C Zeiss, E Mallett and *J K Yermakoff*. IIT Research Inst., VA Lakeside Med. Cntr. and Amoco Corp., Chicago, IL.

#83 **A TOXICOLOGIC EVALUATION OF COMPOUND LY256787 GIVEN INTRAVENOUSLY ONCE OR TWICE A WEEK TO RHESUS MONKEYS FOR SIX WEEKS.** *J L Zimmermann* and G C Todd. Lilly Research Laboratories, Eli Lilly and Company, Greenfield, IN.

#84 **TOXIC RESPONSE TO LINOLEIC ACID ANILIDE IN FEMALE RATS IN RELATION TO TOXIC OIL SYNDROME.** M F Khan, B S Kaphalia, and *G A S Ansari*. Dept. of Pathology, University of Texas Medical Branch, Galveston, TX.

#85 **INHALED AIR POLLUTANTS DISRUPT MACROPHAGE-MEDIATED IMMUNITY IN THE LUNG.** *J T Zelikoff*, E Parsons, M Sisco, D Thomas, Z J Yang, and *R B Schlesinger*. NYU Medical Center, Inst. of Environ. Med., Tuxedo, NY.

#86 **MECHANISMS OF MORPHINE INDUCED IMMUNOSUPPRESSION IN B6C3F1 MICE.** B A Fuchs, D O Freier, and *S B Pruett**. Depart. of Pharmacology and Toxicology, Medical College of Virginia/VCU, Richmond, VA and *Dept. of Biological Science, Mississipi State University, Mississippi State, MS.

#87 **MECHANISIMS OF THYMOCYTE INJURY FOLLOWING *IN VITRO* CHEMICAL EXPOSURE.** C E Comment, B L Blaylock, P L Pollock, D R Germolec, Y Kouchi and *MI Luster*. National Institute of Environmental Health Sciences, RTP, NC.

#88 **SUPPRESSION OF T LYMPHOCYTE FUNCTION IN THE PRIMARY ANTIBODY RESPONSE BY GALLIUM ARSENIDE EXPOSURE.** L A Burns[1], *V M Sanders*[2], A Wagner[2], and *A E Munson*[1]. [1]Dept. of Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA and [2]NIEHS, RTP, NC.

#89 **MODULATION OF LIPOPOLYSACCHARIDE (LPS) STIMULATED SECRETION OF TUMOR NECROSIS FACTOR (TNFα) FROM HUMAN MONONUCLEAR CELLS (MNC), *IN VITRO*, BY CARBARYL (CA).** A C Dwivedy and *G P Casale*. Univ. of Nebraska Med. Cntr., College of Pharmacy, Omaha, NE.

#90 **TOXICOLOGIC EVALUATION OF HUMANIZED ANTI-TAC, (HAT) AND INTERLEUKIN-2 RECEPTOR ANTAGONIST IN CYNOMOLGUS MONKEYS.** *T A Kirley*[1], H Satoh[2], B Fayer[2], M Griffin[3], and R Chizzonite[3]. Dept. of Toxicology and Pathology[1], Dept. of Drug Metabolism[2], Dept. of Molecular Genetics[3], Hoffmann-La Roche Inc., Nutley, NJ.

#91 **IMMUNOMODULATING EFFECTS OF VANADIUM PENTOXIDE (V_2O_5) AND AMMONIUM METAVANADATE (NH_4VO_3) ON MOUSE MACROPHAGE (WEHI-3) MONOKINE AND PROSTAGLANDIN RELEASE.** *M D Cohen*, E Parsons, *R B Schlesinger*, and *J T Zelikoff*, NYU Medical Center, Inst. of Environ. Medicine, Tuxedo, NY.

#92 **THE IMMUNOTOXICITY OF BERYLLIUM METAL AND BERYLLIUM OXIDE IN CYNOMOLGUS MONKEYS.** P J Haley, *G L Finch*, D Davila, and M D Hoover. Inhalation Toxicology Research Institute, Albuquerque, NM.

#93 **ALTERATION IN ANTIGEN-SPECIFIC IMMUNE FUNCTION IN OFFSPRING OF NONHUMAN PRIMATES EXPOSED TO ETHANOL (BINGE EXPOSURES) DURING PREGNANCY.** A Grossmann, S Astley, D Liggitt, S Clarren and L Maggio-Price. School of Medicine, University of Washington, Seattle, WA. Sponsor: *T J Kavanagh*.

#94 **SHORT-TERM ETHANOL EXPOSURE IN YOUNG AND OLD MICE ENHANCES CELL PROLIFERATION IN CD8$^+$ LYMPHOCYTES.** S Thompson, and A Grossmann, Department of Comparative Medicine, University of Washington, Seattle, WA. Sponsor: *T J Kavanagh*.

#95 **PURIFICATION OF SPLENIC NATURAL KILLER CELLS FROM C57BL/6 MICE AND THE EFFECT OF *IN VIVO* ETHANOL CONSUMPTION ON CYTOLYTIC ACTIVITY.** R M Gallucci, L J Pfister, G G Meadows. Department of Pharmaceutical Sciences and the Pharmacology/Toxicology Graduate Program, Washington State University, Pullman, WA. Sponsor: *R J Bull*.

#96 **EFFECT OF PERFLUORODECANOIC ACID (PFDA) ON NATURAL KILLER (NK) CELL ACTIVITY IN FISCHER 344 RATS.** D L Nelson, D E Frazier, Jr., J E Ericson, and M J Tarr. Department of Veterinary Pathobiology, The Ohio State University, Columbus, OH. Sponsor: *V L Carter*.

#97 **CHARACTERIZATION OF THE ROLE THAT THE TIME OF ADDITION OF 2,3,7,8-TETRACHLORO-DIBENZO-p-DIOXIN (TCDD) PLAYS IN THE SUPPRESSION OF AN *IN VIVO* ANTIBODY RESPONSE.** R A Matulka, D L Morris, S C Wood, S D Jordan and *M P Holsapple*. MCV/VCU, Richmond, VA.

#98 **MECHANISM OF ETHANOL-INDUCED IMMUNOSUPPRESSION IN MICE.** Y C Han and *S B Pruett*. Department of Biological Sciences, Mississippi State University, Mississippi State, MS.

#99 ***IN VIVO* IMMUNOTOXICITY AND *IN VITRO* CYTOTOXICITY OF SELECTED DITHIOCARBAMATES.** *S B Pruett*, E Padgett, and D Barnes. Dept. Biol. Sci., Miss. State U., Miss. State, MS.

#100 **EVALUATION OF PHAGOCYTE NITRITE PRODUCTION AS AN IMMUNOTOXICOLOGICAL INDICATOR: CROSS-SPECIES EXTRAPOLATION.** E L Padgett and *S B Pruett*. Dept. Biol. Sci., Mississippi State University, Miss. State, MS.

#101 **IMMUNOTOXICITY OF A COMMERCIAL PREPARATION OF SODIUM METHYLDITHIOCARBAMATE.** D Ensley, Y C Han, E L Padgett, and *S B Pruett*. Dept. Biological Sciences, Mississippi State University, Mississippi State, MS.

#102 **PROPANIL EXPOSURE ALTERS IL-2 PRODUCTION.** S A Theus, L S F Soderberg, *J Gandy* and *J B Barnett*. West Virginia Univ. School of Medicine, Morgantown, WV and Univ. Arkansas for Medical Sciences, Little Rock, AR.

MONDAY MORNING, FEBRUARY 24
CONVENTION SENTER—EXHIBIT HALL

POSTER SESSION: ONCOGENES

Chairperson: Jay I. Goodman, Michigan State University, East Lansing, MI

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 10:00 a.m.–11:30 a.m.

#103 **PROTEIN KINASE C (PKC) ISOZYME EXPRESSION IN MOUSE EPIDERMIS AND SPECIFIC ALTERATIONS IN ACTIVATED HA-RAS CONTAINING PAPILLOMAS.** *K J Mills*, S B Boccking, D J Burns, C R Loomis, and *R C Smart*. Department of Toxicology, North Carolina State University, Raleigh, NC, and Sphinx Pharmaceuticals Corp., Durham, NC.

#104 **HIGH INCIDENCE OF HA-RAS MUTATION IN MIREX-PROMOTED EPIDERMAL PAPILLOMAS.** G J Moser and *R C Smart*. Department of Toxicology, North Carolina State University, Raleigh, NC.

#105 **DNA DAMAGE AT GC-RICH SEQUENCES IN THE C-HA-RAS ONCOGENE ALTERS TRANSCRIPTION FACTOR BINDING.** *W B Mattes* and S D O'Lone. CIBA-GEIGY, Farmington, CT.

#106 **DETECTION OF POINT MUTATIONS IN HAMSTER NSCLC INDUCED BY NNK.** V I C Oreffo, H Lin, P H Gumerlock and *H P Witschi*. Institute of Toxicology & Environmental Health and School of Medicine, University of California, Davis, CA.

#107 **IDENTIFICATION OF MUTANT HARVEY RAS GENES IN MOUSE SKIN PRIOR TO THE DEVELOPMENT OF NEOPLASIA.** *M A Nelson*[1], B W Futscher[2], and G T Bowden[3]. Pharmacology/Toxicology Dept., [1]College of Pharmacy; [2]Radiation Oncology Dept.; and [3]College of Medicine, University of Arizona, Tucson, AZ.

#108 **MOLECULAR ANALYSIS OF UTERINE ENDOMETRIAL ADENOCARCINOMA CELL LINES FROM MICE TREATED NEONATALLY WITH DIETHYLSTILBESTROL.** *C D Hébert*, S Endo, K S Korach, J Boyd, J C Barrett, J A McLachlan, and R N Newbold. National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#109 **A STRATEGY FOR ASSESSMENT OF THE METHYLATION STATUS OF THE 5' FLANKING REGION OF THE c-Ha-RAS GENE IN THE LIVER OF THE B6C3F1 MOUSE.** J L Pavlock and *J I Goodman*. Dept. Pharmacology & Toxicology, Ctr. for Environmental Toxicology, Michigan State University, E. Lansing, MI.

#110 **MODULATION OF STEADY STATE mRNA LEVELS OF c-Ha-ras PROTOONCOGENE IN RAT AORTIC SMOOTH MUSCLE BY BENZO[A]PYRENE (BaP).** D N Sadhu and *K S Ramos*. Dept. of Vet. Physiol. Pharmacol., Texas A&M University, College Station, TX.

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: GENOTOXICITY

Chairperson: Yvonne P. Dragan, McArdle Laboratory for Cancer Research, Madison, WI

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 8:30 a.m.–10:00 a.m.

#111 **CHEMICAL GENOTOXICITY ASSAYS *IN VIVO* USING THE TRANSGENIC MUTAMOUSE.** B Myhr, *D Brusick*, H Khouri, L Custer, and K Intehar. Hazleton Washington, Inc., Vienna, VA.

#112 **TIME DEPENDENT AND TISSUE SPECIFIC MUTAGENIC EFFECTS OF ALKYLATING AGENTS IN *LACI* TRANSGENIC MICE.** G S Provost, S W Kohler, R T Hamner, C D Matthews, *D L Putman**, and J M Short. Stratagene Cloning Systems, La Jolla, CA, and *Microbiological Associates Inc., Rockville, MD.

#113 **INDUCTION OF HEPATIC MUTATIONS IN *LACI* TRANSGENIC MICE EXPOSED TO DIMETHYLNITROSAMINE (DMN) OR METHYLMETHANE SULFONATE (MMS).** *J Mirsalis*[1], S Provost[2], *J MacGregor*[1], C Matthews[2], R Hamner[2], J Schindler[1], J Short[2]. [1]SRI International, Menlo Park, CA and [2]Stratagene Cloning Systems, La Jolla, CA.

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#114 **ANALYSIS OF A SELECTABLE MUTAGENESIS SYSTEM UTILIZING A *LACI* TARGET GENE IN TRANSGENIC MICE.** K S Lundberg, P L Kretz, G S Provost, and J M Short. Stratagene, La Jolla, CA. Sponsor: *J C Mirsalis*.

#115 **THE ASSOCIATION OF 8-HYDROXYGUANINE FORMATION WITH Qβ PHAGE INACTIVATION BY METHYLENE BLUE OR THIOPYRONIN.** J E Schneider, Jr., Q Pye, Y M Hong, L Maidt and *R A Floyd*. Molecular Toxicology Research Program, The Oklahoma Medical Research Foundation, Oklahoma City, OK.

#116 **USE OF AN *IN VITRO* GUANINE N7 DNA ALKYLATION ASSAY TO ASSESS ALKYLATING AGENT POTENCY AND STABILITY.** W C Gunther and *W B Mattes*. CIBA-GEIGY, Farmington, CT.

#117 **THE GENOTOXIC EFFECTS OF ARACHIDONIC ACID IN V79 CELLS ARE PARTIALLY VIA THE INCREASE OF ITS PEROXIDIZED METABOLITES.** J R Zhang, and *A Sevanian*. Insititute for Toxicology, School of Pharmacy, University of Southern California, LosAngeles, CA.

#118 **EVALUATION OF BENZOPORPHYRIN DERIVATIVE, MONOACID RING A (BPD-MA) IN SHORT-TERM GENETIC TOXICOLOGY STUDIES.** A K Thilagar[a], P V Kumaroo[a], K Pant[a], R Gudi[a], B Kelly[b], D Mallon[c] and *R Filler*[c]. [a]SITEK Research Labs, Rockville, MD, [b]Quadra Logic Technologies, Inc. Vancouver, Canada, and [c]American Cyanamid Company, Medical Research Division, Pearl River, NY.

#119 **DINITROPYRENE-INDUCED DNA AMPLIFICATION IN CO60 CELLS.** R E Neft, A L Roe, B A Smith and F A Beland. National Center for Toxicological Research, Jefferson, AR. Sponsor: *D W Roberts*.

#120 **CHARACTERIZATION OF THE RAT NEONATE AS A SUITABLE ANIMAL MODEL FOR HYDRAZINE GENOTOXICITY STUDIES.** T Leakakos and *R C Shank*. University of California/Irvine, Dept. of Community and Environmental Medicine, Irvine, CA.

#121 **A PRELIMINARY ASSESSMENT OF THE MUTAGENICITY OF 1,3-BUTADIENE IN TRANSGENIC MICE.** L Recio, S Osterman-Golkar, G A Csanady, B Myhr[1], *O Moss* and *J A Bond*. CIIT, RTP, NC and [1]Hazleton Washington, Kensington, MD.

#122 **STRUCTURE-ACTIVITY RELATIONSHIP OF ADENOSINE ANTAGONISTS IN A DNA UNWINDING ASSAY: COMPARISON TO AMES SALMONELLA TESTER STRAIN, TA1537.** E R Lasinski*, M A Mehesy*, S D O'Lone**, *M J Schlosser**, *W B Mattes***, *J C Kapeghian**, DW Matheson**, *E T Yau** and *V M Traina**. CIBA-GEIGY Corp. Research Dept., Pharmaceuticals Div., Summit, NJ and **Agricultural Div., Farmington, CT.

#123 **INDUCTION OF DNA DAMAGE BY URETHANE IN MOUSE TESTES.** R Sotomayer, F Kadlubar, C Teitel, G Gray, and G Sega. FDA, Laurel, MD; NCTR, Jefferson, AR and ORNL, Oak Ridge, TN. Sponsor: *S. Hsia*

#124 **ASSESSMENT OF THE GENOTOXICITY OF PERFLUORODECANOIC ACID AND CHLOROTRIFLUOROETHYLENE TRIMER AND TETRAMER ACIDS.** C S Godin, B C Myhr*, T E Lawlor*, R R Young*, H Murli*, and M A Cifone*. ManTech Environmental Technology, Inc., Dayton, OH. *Hazleton Washington, Kensington, MD. Sponsor: *E Kinkead*.

#125 **GENOTOXICITY OF THE ALKENYLBENZENES α-AND β-ASARONE DETERMINED BY THE UNSCHEDULED DNA SYNTHESIS (UDS) ASSAY IN FRESHLY ISOLATED RAT HEPATOCYTES.** G Hasheminejad and *J Caldwell*. Department of Pharmacology and Toxicology, St. Mary's Hospital Medical School, Imperial College of Science, Technology and Medicine, London, UK.

#126 **1'-HYDROXYLATION IS THE ONLY METABOLIC PATHWAY OF SIMPLE ALKENYLBENZENES INVOLVED IN THEIR GENOTOXICITY.** *J Caldwell*, V S W Chan, A D Marshall, G Hasheminejad and S V J Bounds. Dept. of Pharmacology and Toxicology, St. Mary's Hospital Medical School, Imperial College, London, UK.

#127 **ARACHIDONIC ACID-DEPENDENT INDUCTION OF MICRONUCLEI IN V79 CELLS BY PHENYLHYDROQUININE, A METABOLITE OF THE FUNGICIDE O-PHENYLPHENOL.** A C Romanoski and *D A Eastmond*. Environmental Toxicology Graduate Program, University of California, Riverside, CA.

#128 **MUTAGENICITY STUDIES OF TWO INSOLUBLE 3,3'-DICHLOROBENZIDINE-BASED AZO PIGMENTS IN THE AMES SALMONELLA MICROSOME ASSAY AND STUDIES ON ACID TREATMENT.** *G H Y Lin**, Y Ishikawa and M Okao. *Joseph C. Wilson Center for Technology, Xerox Corporation, Webster, NY; and Safety Promotion Center, Fuji Xerox Company, Tokyo, Japan.

#129 **CYTOGENOTOXIC POTENTIAL OF DIFFERENT STYRENE METABOLITES IN HUMAN BLOOD LYMPHOCYTES.** X X Zhang[1], *S Chakrabarti*[1] and C L Ticher[2]. Departement de medecine de travail et hygiene du milieu [1] and Departement d'anatomie[2], Universite de Montreal, Montreal, Quebec, Canada.

#130 **COAL TAR CREOSOTE ALTERS INTESTINAL ENZYME ACTIVITY AND BIOACTIVATION OF 2,6-DINITROTOLUENE IN F-344 RATS.** *R W Chadwick*[1], *S E George*[1], J Chang[2], M J Kohan[1], J C Allison[1], Y Hayes[2], R W Williams[3], and R J Meares[3]. [1]USEPA, HERL, RTP, NC; [2]UNC, Chapel Hill, NC; [3]EHRT, RTP, NC.

#131 **ANTIOXIDANT MODULATION OF DNA STRAND BREAKS (SB) IN CHINESE HAMSTER OVARY (CHO) CELLS EXPOSED DIRECTLY TO CIGARETTE SMOKE.** R S Lake, *C L Gaworski*, A P Deaton, M M Dozier and *J D Heck*. Lorillard Tobacco Co., Greensboro, NC.

#132 **APPLICATION OF A SYSTEM FOR THE DIRECT *IN VITRO* EXPOSURE OF MAMMALIAN CELLS TO CIGARETTE SMOKE IN STUDIES OF DNA STRAND BREAKS (SB).** *J D Heck*, *C L Gaworski*, R S Lake, M M Dozier, A P Deaton, and T A Vollmuth. Lorillard Tobacco Co., Greensboro, NC.

#133 **EVALUATION OF DIMETHYLETHOXYSILANE (DMES) IN SHORT-TERM GENETIC TOXICITY STUDIES.** *C W Lam*[1], *J T James*[2], P E Kirby[3], R Gudi[3], K Pant[3], J Xu[3], K Johnsrud[3], *D E Dodd*[4], *B O Stuart*[4], S J Rothenberg[4], M Kershaw[5], and A K Thilagar[3]. [1]KRUG Life Sciences, Houston, TX, [2]NASA-JSC, Houston, TX, [3]SITEK Research Labs, Rockville, MD, [4]Mantech Environmental Technology, Upton, NY and [5]Brookhaven National Lab., Upton, NY.

#134 ***hprt* MUTATIONS, CHROMOSOMAL ABERRATIONS (CA) AND SISTER CHROMATID EXCHANGES (SCE) IN T-LYMPHOCYTES OF NORMAL WOMEN AND WOMEN WITH BENIGN AND MALIGNANT BREAST MASSES.** R F Branda, J P O'Neill, *D Jacobson-Kram* and R J Albertini. Depart. of Medicine and the Vermont Regional Cancer Center, Univ. of Vermont, Burlington, VT and Johns Hopkins Univ. Oncology Center, Balt., MD.

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: BIOTRANSFORMATION I

Chairperson: Burhan I. Ghanayem, NIEHS, Research Triangle Park, NC

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 10:00 a.m.–11:30 a.m.

#135 ***IN VITRO* PERCUTANEOUS ABSORPTION AND METABOLISM OF 2-CHLORO-2,6-DIETHYL-N (BUTOXYMETHYL) ACETANILIDE (BUTACHLOR) AND 2-CHLORO-4-ETHYLAMINO-6-ISOPROPYLAMINE-*s*-TRIAZINE (ATRAZINE) IN MAN.** J I Ademola, R C Wester, and *H I Maibach*. Dermatology Dept., University of California, San Francisco, CA.

#136 **METABOLISM OF 1,2,4-BENZENETRIOL BY HUMAN MYELOPEROXIDASE: IMPLICATION IN BENZENE INDUCED MYELOTOXICITY.** V V Subrahmanyam, P Kolachana and *M T Smith*. School of Public Health, University of California, Berkeley, CA.

#137 **METABOLISM OF BIS(2-METHOXYETHYL)ETHER BY RAT AND HUMAN LIVER MICROSOMES.** M A Tirmenstein. Cellular Toxicology Section, ETB, DBBS, NIOSH, CDC. Taft Laboratories, Cincinnati, OH. Sponsor: *M A Toraason*.

#138 **ROLE OF THE FLAVIN-CONTAINING MONOOXYGENASE AND CYTOCHROME P450 ENZYMES IN THE OXIDATION OF THE PSYCHOACTIVE DRUG THIORIDAZINE.** B L Blake, R L Rose, K Venkatesh, *P E Levi*, and *E Hodgson*. Department of Toxicology, North Carolina State University, Raleigh, NC.

#139 **STEREOSELECTIVE SULFOXIDATION BY HUMAN FLAVIN CONTAINING MONOOXYGENASES: CATALYTIC DIVERSITY BETWEEN HEPATIC, RENAL AND FETAL FORMS.** A J M Sadeque and A E Rettie. Department of Medicinal Chemistry, University of Washington, Seattle, WA. Sponsor: *S D Nelson*.

#140 **FORMATION OF ACIDIC METABOLITES OF TA-3090 BY RAT, DOG AND HUMAN LIVER POSTMITOCHONDRIAL SUPERNATANT (10S).** T Thompson, J Geary and *K Hwang*. Marion Merrell Dow Research Institute, Kansas City, MO.

#141 **CYCLOSPORINE A (CsA) METABOLISM IN KIDNEY, GUT AND LIVER SLICE CULTURES: A CROSS SPECIES COMPARISON.** A Vickers, V Fischer, S Connors*, R Fisher*, W Biggi, J Vogelaar, J Baldeck, G Maurer, and *K Brendel**. Drug Safety, Sandoz Pharma., Basel, Switzerland and *Dept. Pharmacol. Toxicol., Univ. of Arizona, Tucson, AZ.

#142 **COMPARATIVE CHIRAL METABOLISM OF 3,4-(METHYLENEDIOXY) METHAMPHETAMINE (MDMA) IN RAT AND MOUSE: QUANTIFICATION BY CHIRAL GC-MS ASSAY.** H K Lim, S Zeng and R L Foltz. Center for Human Toxicology, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT. Sponsor: *D E Moody*.

#143 ***IN VITRO* METABOLISM OF [^{3}H]2,6-DINITROTOLUENE BY RAT AND HUMAN LIVER.** D E Chapman, S R Michener, T A Christensen and *G Powis*. Department of Pharmacology, Mayo Clinic and Foundation, Rochester, MN.

#144 **PLASMA CLEARANCE (CL) OF THE ERGOT ALKALOID CQA DETERMINED FROM LIVER SLICES OF HUMAN, RAT AND DOG IS PREDICTIVE OF *IN VIVO* VALUES.** J Vogelaar, W Biggi, S Connors*, A Larrauri, *K Brendel**, and A Vickers. Drug Safety, Sandoz Pharma., Basel, Switzerland; and *Dept. of Pharmacol. Toxicol., Univ. of Arizona, Tucson, AZ.

#145 **METABOLISM OF ACRYLIC ACID IN RAT LIVER HOMOGENATES.** T L Ziegler, S M Winter, N E MacKenzie*, and *I G Sipes*. Dept. Pharm/Tox and Pharm Sci*, Univ. of Arizona, Tucson, AZ.

#146 **METABOLISM OF ACRYLIC ACID TO CO_2 IN MOUSE TISSUE SLICES.** K A Black, L Finch and *C B Frederick*. Toxicology Dept., Rohm and Haas Co., Spring House, PA.

#147 **BIOACTIVATION OF HALOGENATED HYDROCARBONS BY RABBIT CLARA CELLS.** *W K Nichols*, M O Covington, and *G S Yost*. Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.

#148 **HUMAN METABOLISM OF THE CFC-SUBSTITUTE HFC-134a; ROLE OF CYTOCHROME P450IIE1.** *M J Olson* and S E Surbrook, Jr. Biomedical Science Dept., General Motors Research Labs, Warren, MI.

#149 **MECHANISM OF PROPYLENE GLYCOL INHIBITION OF ACETAMINOPHEN BIOACTIVATION IN HEPATIC MICROSOMAL FRACTIONS.** *J E Snawder*, R W Benson, J E A Leakey, A R Warbritton, E H Jeffery and *D W Roberts*. National Center for Toxicological Research, Jefferson, AR, and Institute for Environmental Studies, University of Illinois, Urbana, IL.

#150 **OXIDATION OF para-HALOGENATED PHENOLS TO BENZOQUINONES IN A SINGLE P-450 MEDIATED OXIDATION STEP.** C den Besten[1], *P J van Bladeren*[1,3], E Duizer[1,2], J Vervoort[2], I M C M Rietjens[2]. [1]Dept. of Toxicology, and [2]Biochemistry, Agricultural University, Wageningen, [3]Dept. of Biological Toxicology, ITV-TNO, Zeist, The Netherlands.

#151 **METABOLISM *IN VIVO* OF HALOTHANE AND THE CHLOROFLUOROCARBON SUBSTITUTES HCFS-123, HCFC-124 and HCFC-125 TO TRIFLUOROACETYLATED LIVER PROTEIN ADDUCTS.** J L Martin, J W Harris, A C LaRosa, M J Olson, *M W Anders* and *L R Pohl*. NHLBI, NIH, Bethesda, MD, The Johns Hopkins Medical Institutions, Baltimore, MD, General Motors Research Laboratories, Warren, MI and University of Rochester, Rochester, NY.

#152 **CONCENTRATION DEPENDENT INHIBITION OF HALOTHANE BIOTRANSFORMATION AND COVALENT BINDING IN THE GUINEA PIG.** R C Lind and *A J Gandolfi*. Department of Anesthesiology, University of Arizona, Tucson, AZ.

#153 **CHLOROHYDRINS ARE NOVEL METABOLITES OF 1,3-BUTADIENE, STYRENE, AND CYCLOHEXENE FORMED BY HUMAN MYELOPEROXIDASE (MPO).** R J Duescher and *A A Elfarra*. Dept. of Comp. Biosci. and Envir. Tox. Center, Univ. of Wisconsin, Madison, WI.

#154 **METABOLISM AND COVALENT BINDING OF 2-AMINO-1-METHYL-6-PHENYLIMIDAZO [4,5,-*b*] PYRIDINE (PhIP) IN MOUSE LIVER MICROSOMAL PREPARATIONS.** *M H Buonarati* and J S Felton. Biomedical Sciences Division, Lawrence Livermore Natl. Laboratory, Livermore, CA.

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: HEPATIC TOXICOLOGY I

Chairperson: Klaus Brendel, University of Arizona, Tucson, AZ

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 8:30 a.m.–10:00 a.m.

#155 **PLASMA ENZYME INCREASES AND HEPATIC LIPID PEROXIDATION (LPO) BY ACUTE ETHANOL.** *R T Louis-Ferdinand, A Naganuma*, Y Gogi and *N Imura*. Kitasato University, Tokyo and Wayne State University, Detroit, MI.

#156 **INHALATION OF A KETONE CAN POTENTIATE TWO MODELS OF INDUCED INTRAHEPATIC CHOLESTASIS.** A Duguay and *G L Plaa*. Department de Pharmacologie, Universite de Montreal, Quebec, Canada.

#157 **PARTIAL CHARACTERIZATION OF ACUTE 4,4'-METHYLENE DIANILINE HEPATOTOXICITY IN THE RAT.** M B Bailie, and *R A Roth*. Dept. of Pharmacol/Toxicol., Michigan State University, East Lansing, MI.

#158 **OXIDATION OF 4-HYDROXYNONENAL AND ACETALDEHYDE BY MOUSE LIVER MITOCHONDRIAL ALDEHYDE DEHYDROGENASE.** D P Hartley and *D R Petersen*. Molecular Toxicology and Environmental Health Sciences Program, School of Pharmacy, University of Colorado, Boulder, CO.

#159 **2-HYDROXYACETANILIDE: METABOLIC DISPOSITION AND COVALENT BINDING.** H Heyn, *J M McMillan*, and D J Jollow. Dept. of Pharmacology, Med. University of South Carolina, Charleston, SC.

#160 **TIME COURSE OF α-NAPHTHYLISOTHIOCYANATE(ANIT)-INDUCED CHANGES IN SERUM AND LIVER ENZYME ACTIVITIES.** J A Handler, *R S Goldstein*, A K Shin and D J Meyer. Depts. of Investigative Toxicology and Experimental Pathology, SmithKline Beecham Pharmaceuticals, King of Prussia, PA.

#161 **2,3,7,8-TETRACHLORODIBENZODIOXIN (TCDD) PRETREATMENT OF MALE FISCHER RATS ALTERS THE HEPATIC METABOLISM OF 3,3',4,4'-TETRACHLOROBIPHENYL (TCB).** *M K McKinley*[1,2], *L B Kedderis*[3], and *L S Birnbaum*[4]. [1]MantTech Environmental Technology, Inc., RTP, NC, [2]Duke University, Durham, NC, [3]Toxicology Curriculum, UNC Chapel Hill,NC and [4] US Environmental Protection Agency, RTP, NC.

#162 **HEPATOTOXICITY OF METHYLPHENIDATE: POTENTIATION BY BETA-ADRENORECEPTOR STIMULATING COMPOUNDS.** *R C James*, R D Harbison, L Roth, and S M Roberts. J. Hillis Miller Health Science Center and Center for Environmental and Human Toxicology, Univ. of Florida, Gainesville, FL.

#163 **THE COAGULATION SYSTEM, BUT NOT CIRCULATING FIBRINOGEN, CONTRIBUTES TO LIVER INJURY FROM GRAM-NEGATIVE BACTERIAL ENDOTOXIN (LPS).** *J A Hewett* and *R A Roth*. Dept. of Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#164 **TOXICOLOGICAL IMPORTANCE OF NITRIC OXIDE (NO) IN INFLAMMATORY LIVER INJURY.** *H Jaeschke* and A Farhood, Dept. Medicine, Baylor College of Medicine and Dept. Pathology, University of Texas Health Science Center, Houston, TX.

#165 **LOCALIZATION OF COCAINE AND METABOLITES IN LIVER SECTIONS: EFFECT OF ENZYME INDUCER PRETREATMENT.** L Roth, *R D Harbison, R C James, T Tobin*, and *S M Roberts*. J. Hillis Miller Health Science Center and Center for Environmental Human Toxicology, Univ. of Florida, Gainesville, FL; and Graduate Center for Toxicology, Univ. of Kentucky, Lexington, KY.

#166 **COCAETHYLENE: COMPARISON OF LIVER TOXICITY WITH ITS PARENT COMPOUND, COCAINE.** *S M Roberts*, L Roth, *R C James*, and *R D Harbison*. J Hillis Miller Health Science Center and Center For Environmental Human Toxicology, University of Florida, Gainesville, FL.

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#167 **ISOMER SPECIFIC TOXICITY OF COCAINE AND ITS ISOMERS, (+) COCAINE AND (-) PSEUDOCOCAINE, IN CULTURED RAT HEPATOCYTES.** C Goldlin, *R B Melchert*, *A A Welder* and U A Boelsterli. Institute of Toxicology ETH, Schwerzenbach, Switzerland, and College of Pharmacy, University of Oklahoma HSC, Oklahoma City, OK.

#168 **BIOACTIVATED COCAINE IRREVERSIBLY BINDS TO CYTOCHROME P450IIB1 IN RAT HEPATOCYTES.** U A Boelsterli, M Oertle, and C Goldlin. Institute of Toxicology ETH, Schwerzenbach, and Department of Medicine, University Hospital, Zurich, Switzerland. Sponsor: *G Zbinden*.

#169 **EFFECT OF WATER RESTRICTION ON ALLYL ALCOHOL HEPATOTOXICITY IN F-344 RATS.** K L McKenzie[1,2], A McDonald[2], D B Miller[2], *J E Simmons*[2]. Duke University[1], HERL US EPA, RTP, NC.[2]

#170 **THE EFFECT OF DIETARY RESTRICTION (DR) ON BODY WEIGHT (BW), ORGAN WEIGHT, AND CARCASS COMPOSITION IN SPRAGUE-DAWLEY (SD) RATS.** G Ballam, M Roos, C Angel, *P.Smith**, J Buck*, R Clark*, G Schmouder, K Soper and K Keenan*. Purina Mills, Inc., St. Louis, MO, and *Merck Sharp and Dohme Research Laboratories, West Point, PA.

#171 **EVALUATION OF DIETARY RESTRICTION IN SPRAGUE-DAWLEY RATS; RESULTS OF THE 52-WEEK INTERIM NECROPSY.** *P F Smith*, R Clark, D Alberts, R Wang, J DeLuca, L Bracht, A Williams-Diaz, K Bradshaw, G Ballam[1] and K P Keenan. Merck Sharp Dohme Research Labs, West Point, PA and [1]Purina Mills, Inc., St. Louis, MO.

#172 **SENSITIVITY OF RAT LIVER TO CHANGES IN DIETARY PROTEIN INTAKE.** *D R Webb*. The Procter & Gamble Company, Cincinnati, OH.

#173 **DIFFERENCES IN DRUG AND CARBOHYDRATE METABOLISM IN THE PERFUSED LIVER OF RATS FED CHOW AND FIBER-FREE SEMI-PURIFIED DIETS (FFSPD).** F E Wood, B J Keller, and *R G Thurman*. Procter & Gamble, Cincinnati, OH, and Department of Pharmacology, University of North Carolina, Chapel Hill, NC.

#174 **AGED MICE ARE RESISTANT TO LIVER DAMAGE CAUSED BY CONCURRENT ADMINISTRATION OF GALACTOSAMINE AND ENDOTOXIN.** K R Hornbrook, S D Kosanke, and *L E Rikans*. Depts. Pharmacology and Pathology, Univ. Oklahoma Health Sci. Ctr., Oklahoma City, OK.

MONDAY MORNING, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: OXIDATIVE STRESS

Chairpersons: Gisela Witz, University of Medicine and Dentistry of NJ, Piscataway, NJ and Dan C. Liebler, University of Arizona, Tucson, AZ

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 10:00 a.m.–11:30 a.m.

#175 **PRETREATMENT OF RABBIT PULMONARY ENDOTHELIAL CELLS WITH 3-AMINOBENZAMIDE PRESERVES NAD(P)H AND GLUTATHIONE DURING OXIDANT INJURY.** *T J Kavanagh*, J Walton, M T Orsborn, G Raghu and R G Holman. Departments of Medicine and Environmental Health, University of Washington, and Department of Surgery, Seattle VA Medical Center, Seattle, WA.

#176 **NITROGEN DIOXIDE (NO_2)- AND NITRIC OXIDE (NO)-INDUCED PRODUCTION OF SECOND MESSENGER IN PULMONARY ARTERY ENDOTHELIAL CELLS.** *J M Patel*, M Sekharam, and E R Block. University of Florida and VAMC, Gainesville, FL.

#177 **COMPARISON OF ANIMAL AND HUMAN DOSE OF OZONE TO THE LUNG THROUGH MEASUREMENT OF REACTION PRODUCTS OF OXYGEN-18 LABELED OZONE ($^{18}O_3$) IN BRONCHOALVEOLAR LA VAGE (BAL).** *G E Hatch*, D Costa, H S Koren, R B Devlin, W F McDonnell, R Slade, A Strong, and L Harris. [1]ETD and HSD, HERL, US EPA, and [1]ManTech Inc., RTP, NC.

#178 **THE EFFECTS OF PARAQUAT ON THE YEAST, *SACCHAROMYCES CEREVISIAE*, AND ON ADULT RAT LUNG (ARL) CELLS IN CULTURE.** B L N Blua and C S McLaughlin. Dept. of Comm. and Environ. Medicine, Univ. of Calif., Irvine, CA. Sponsor: *D B Menzel*.

#179 **OZONE (O_3)-INDUCED CYTOGENETIC EFFECTS IN ALVEOLAR MACROPHAGES OF DIFFERENTIALLY OZONE-SUSCEPTIBLE INBRED MICE.** S R Kleeberger, J E Seiden, L-Y Zhang, W Hadnagy, and N H Seemayer. Johns Hopkins Univ., Baltimore, MD; Med. Inst. Environ. Hygiene, Heinrich-Heine-Universitat, Dusseldorf, FRG. Sponsor: *J D Yager*.

#180 **QUINONE-INDUCED OXIDATIVE STRESS ACTIVATES PROGRAMMED CELL DEATH (PCD) IN PANCREATIC RINm5F CELLS.** J M Dypbukt, M N Ankarcrona, M Burkitt, A Sjoholm, K Strom, S Orrenius, P Nicotera. Dept. of Toxicology, Karolinska Institutet, Stockholm, Sweden. Sponsor: *L Manzo*.

#181 **FREE RADICAL INDUCED LIPID PEROXIDATION AND ALTERATION OF CALCIUM TRANSIENTS IN CULTURED CARDIAC MYOCYTES.** *M Toraason*, M Breitenstein, I Heinroth-Heinroth, and P Hoffmann. Cellular Toxicology Section, ETB, DBBS, NIOSH, CDC, Cincinnati, OH.

#182 **PARAQUAT RESISTANCE IN COPPER-ZINC SUPEROXIDE DISMUTASE TRANSGENIC LINES MAY ARISE AS A RESULT OF ALTERATIONS IN MANGANESE SUPEROXIDE DISMUTASE AND NADPH-REDUCTASE ACTIVITY.** *M J Kelner* and R Bagnell. Department of Pathology, University of California, San Diego, CA.

#183 **DIFFERENTIAL EFFECTS OF OXIDANTS AND ALTERED Ca^{2+} HOMEOSTASIS ON PLASMA-MEMBRANE BINDING AND ACTIVATION OF μ CALPAIN (Ca^{2+} ACTIVATED NEUTRAL PROTEASE).** *R F Novak*, A M Mortensen, J C Novak and F Salinas. The Institute of Chemical Toxicology, Wayne State University, Detroit, MI.

#184 **OXIDANT STRESS ALTERS CALCIUM HOMEOSTASIS IN VASCULAR ENDOTHELIAL CELLS.** *E M K Lui*[1], M Chang[2] and *H J Forman*[3]. [1]Department of Pharmacology and Toxicology, University of Western Ontario, Ont., Canada, [2]Department of Pediatrics, U.C. Davis, Sacramento, CA, and [3]Department of Pediatrics, Children's Hospital Los Angeles, Los Angeles, CA.

#185 **OXIDATIVE STRESS PRODUCES LOCAL AREAS OF HIGH CONCENTRATION OF REACTIVE OXYGEN SPECIES.** S Oddo, A Schiano, S Franklin, B Ziegler and *D B Menzel*. Departments of Community and Environmental Medicine and Advanced Computation Center, University of California, Irvine, CA.

#186 **ENDRIN-INDUCED OXIDATIVE STRESS IN FEMALE SPRAGUE-DAWLEY RATS.** M Bagchi, E A Hassoun, D Bagchi and *S J Stohs*. Dept of Pharmaceutical Sciences, Creighton University Health Center Sciences, Omaha, NE.

#187 **KINETICS OF TOLUENE-INDUCED OXIDATIVE STRESS.** *C J Mattia* and *S C Bondy*. Department of Community and Environmental Medicine, University of California, Irvine, CA.

#188 ***IN VITRO* PRODUCTION OF OXYGEN REACTIVE SPECIES (ORS) BY PENTACHLOROPHENOL (PCP),TETRACHLOROHYDROQUINONE (TCH) AND TETRACHLORO-*P*-BENZOQUINONE (TCB).** *S Babo*, and M Charbonneau. Dep. hygiene du milieu, Universite de Montreal, Quebec, Canada.

#189 **ANTIOXIDANT PROTECT HUMAN ASTROCYTOMA CELLS FROM DAMAGE CAUSED BY ATP DEPLETION.** B M Taylor, W E Fleming and F F Sun. Hypersensitivity Diseases Res., The Upjohn Company, Kalamazoo, MI. Sponsor: *B K J Leong*.

#190 **SUSCEPTIBILITY OF SICKLE RED CELLS (RBCs) TO FREE RADICAL INDUCED OXIDATIVE DAMAGE.** V L Tatum, C Natta and C K Chow. Univ. of KY, Lexington, KY. Sponsor: *H Glauert*.

#191 **MOUSE TERATOCARCINOMA CELLS SELECTED FOR OXYGEN RESISTANCE HAVE INCREASED GLUTATHIONE CONTENT.** C E Ogburn, M T Orsborn, C C White, *D L Eaton*, G M Martin, and *T J Kavanagh*. Departments of Pathology, Environmental Health and Medicine, University of Washington, Seattle, WA.

#192 **EFFECTS OF ASCORBIC ACID AND CURCUMIN ON QUERCETIN-INDUCED NUCLEAR DNA DAMAGE AND LIPID PEROXIDATION.** *S C Sahu* and M C Washington. Molecular Toxicology Branch, Division of Toxicological Studies, Food and Drug Administration, Washington, DC.

#193 **ISOLATION AND IDENTIFICATION OF SINGLET OXYGEN OXIDATION PRODUCTS OF β-CAROTENE.** S P Stratton, and *D C Liebler*. Dept. of Pharmacology and Toxicology, Univ. of Arizona, Tucson, AZ.

#194 **OXIDATIVE DNA DAMAGE LEVELS IN RATS FED LOW-FAT, HIGH-FAT OR CALORIE-RESTRICTED DIETS.** *Z Djuric*[1], M H Lu[2], S Lewis[2], D A Luongo[1], X W Chen[2], L K Heilbrun[1], B A Reading[1], P H Duffy[2], and *R W Hart*[2]. [1]Department of Internal Medicine, Wayne State University, Detroit, MI and [2]National Center for Toxicological Research, Jefferson, AR.

#195 **METHYL MERCURY AND OXIDATIVE NEUROTOXICITY IN CULTURE.** *T A Sarafian*, S H Aguiar, B Mitrovic, M A Verity. Dept. of Pathology, UCLA, Los Angeles, CA.

#196 **PRODUCTION OF REACTIVE OXYGEN SPECIES (ROS) BY CARDIAC MITOCHONDRIA AND IN ISOLATED-PERFUSED RAT HEART TISSUE.** *T Paraidathathu* and *J P Kehrer*. Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, Austin, TX.

#197 **EFFECTS OF PHENYLBUTAZONE AND AMINO ACIDS ON BENZO(a)PYRENE-7,8-DIHYDRODIOL COOXYGENATION BY PARTIALLY PURIFIED PLACENTAL PEROXIDASE.** *A P Kulkarni*, P Joseph, and *J Z Byczkowski**. Toxicology Program, College of Public Health, University of South Florida, Tampa, FL; *ManTech Environmental Technology, Inc., Dayton, OH.

#198 **A GENETIC APPROACH TO UNDERSTANDING THE DETERMINANTS OF OXYGEN TOXICITY.** V Culotta, P Lapinskas, I Elashvili and X F Liu. Division of Toxicological Sciences, Johns Hopkins School of Hygiene and Public Health, Baltimore, MD. Sponsor: *T Kensler*

#199 **THE EFFECTS OF U-78517F IN IRON TIME COURSE VITAMIN E, TBARS, AND SULFHYDRYL ASSAYS CONDUCTED IN RAT BRAIN HOMOGENATE.** *K L Linseman* and J M McCall. CNS Diseases Research, The Upjohn Co., Kalamazoo, MI.

#200 **INDUCTION OF HEPATIC METALLOTHIONEIN BY PARAQUAT.** J W Bauman, *C Madhu*, J M McKim, Jr., Y P Liu, and *C D Klaassen*. University of Kansas Medical Center, Kansas City, KS.

#201 **FENTON-REACTIVE IRON BINDING AND PEROXIDE MEDIATED TOXICITY IN ISOLATED RAT HEPATOCYTES.** G L Bannenberg, *H G Shertzer*, P Moldéus. Department of Toxicology, Karolinska Institute, Stockholm, Sweden; Department of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH.

#202 **"OXIDATIVE STRESS" RESPONSE IN LIVER OF AN UNTREATED NEWBORN MOUSE HAVING A 1.2-cM DELETION ON CHROMOSOME 7.** H-C Liang, *D W Nebert* and *H G Shertzer*. Dept. Envir. Health, Univ. Cincinnati Med. Center, Cincinnati, OH.

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#203 **EFFECTS OF MENADIONE ON MEMBRANE FLUIDITY AND OXIDATIVE STRESS IN RAT HEPATOCYTES.** *H G Shertzer*, L Lastbom, M Sainsbury and P Moldéus. Department of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH; Department of Toxicology, Karolinska Institute, Stockholm, Sweden; School of Chemistry, University of Bath, Claverton Down, Bath, UK.

#204 **MECHANISMS OF THE KILLING OF CULTURED RAT HEPATOCYTES BY BENZOQUINONE AND DIMETHYLBENZOQUINONE.** K Mitzumoto and *J L Farber*. Thomas Jefferson University, Philadelphia, PA.

#205 **NADH-, ASCORBATE-DEPENDENT PEROXIDASE ACTIVITY IN RAT LIVER MICROSOMES.** *D P Jones*. Emory University, Atlanta, GA.

#206 **DIQUAT-INDUCED REDISTRIBUTION OF HEPATIC IRON IN RATS.** *C V Smith*, S Gupta, A Chang, and L K Rogers. Dept. of Pediatrics, Baylor College of Medicine, Houston, TX.

#207 **THE METABOLISM OF VITAMIN C IN CULTURED RAT HEPATOCYTES INTOXICATED WITH *tert*-BUTYL HYDROPEROXIDE.** P A Glascott, E. Gilfor AND *J L Farber*. Department of Pathology, Thomas Jefferson University, Phila., PA.

#208 **HEPATIC PEROXIDATIVE INJURY ASSESSED *IN VIVO* BY OXYGEN-18 INCORPORATION: INHIBITION BY TIRILAZAD® MESYLATE, A THERAPEUTIC ANTIOXIDANT.** J Norwood, Jr., *T W Petry*[1], R A Jolly[1], and *G E Hatch*. PTB, ETD, HERL, US EPA, RTP, NC and [1]Investigative Toxicology, Upjohn Laboratories, Kalamazoo, MI.

MONDAY MORNING, FEBRUARY 24

POSTER SESSION: TCDD

Chairpersons: Daniel W. Nebert, University of Cincinnati, Cincinnati, OH and Rex A. Pegram, US EPA, Research Triangle Park, NC

Displayed: 8:30 a.m.–11:30 a.m.
Attended: 8:30 a.m.–10:00 a.m.

#209 **MATERNAL AND FETAL RETINOID LEVELS IN HOLTZMAN RATS EXPOSED TO 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD).** D A Tonucci, *J R Olson*. Department of Pharmacology and Therapuetics, School of Medicine and Biomedical Sciences, SUNY at Buffalo, Buffalo, NY.

#210 **HEPATIC UPTAKE AND METABOLISM OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) AND 2,3,7,8-TETRACHLORODIBENZOFURAN (TCDF).** *J R Olson*, J H McReynolds[1], S Kumar[2], B P McGarrigle, and P J Gigliotti. Toxicology Research Center and Depts. of Pharmacology and Biophysics[1], State Univ. of New York and Div. of Environ. Toxicol. and Chem., Center for Environ. Research[2], SUNY College, Buffalo, NY.

#211 **DIOXIN-INDUCED EROD INDUCTION AND PEPCK INHIBITION ARE INDEPENDENT OF EACH OTHER.** M Lebofsky, *L W D Weber*, B U Stahl and *K Rozman*. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS, and Section of Environmental Toxicology, GSF-Institut fur Toxikologie, Neuherberg, FRG.

#212 **COMPARATIVE INDUCTION OF CYTOCHROME P4501A1 BY 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) AND TISSUE DISTRIBUTION OF TCDD IN YOUNG SENESCENT C57BL/6N MICE.** *R A Pegram*, J J Diliberto, T L Leavens*, P Gao and *L S Birnbaum*. HERL/USEPA, RTP, NC and *Curriculum in Toxicology, UNC at Chapel Hill, NC.

#213 **BILIARY EXCRETION AND HEPATIC DISPOSITION OF TCDD IN RATS.** *L B Kedderis* and *L S Birnbaum*. Curriculum in Toxicology, UNC Chapel Hill, NC and US Environmental Protection Agency, RTP, NC.

#214 **17β-ESTRADIOL HYDROXYLATION CATALYZED BY HUMAN CYTOCHROME P450 1A1.** J F Gierthy[1], D C Spink[1], H P Eugster[2], J D Schuetz[3], E G Schuetz[3], and *L S Kaminsky*[1]. [1]Wadsworth Center, NYS Dept. of Health, Albany, NY; [2]SwissFed. Inst. of Technology, Schwerzenbach, Switzerland; and [3]Medical College of VA, Richmond, VA.

#215 **DIOXIN-INDUCED INCREASE OF TRYPTOPHAN LEVELS IN RATS IS CAUSED BY INHIBITION OF LIVER TRYPTOPHAN 2,3-DIOXYGENASE.** *L W D Weber*, B U Stahl and *K Rozman*. Dept. Pharmacol., Toxicol. and Therap., Univ. Kansas Med. Ctr., Kansas City,KS, and Section of Environ. Toxicology, GSF-Institut fur Toxikologie, Neuherberg, FRG.

#216 **THE EFFECTS OF ANTI-TNF-α MONOCLONAL ANTIBODY AND DEXAMETHASONE ON TCDD-INDUCED OXIDATIVE STRESS IN MICE.** *N Z Alsharif*, E Hassoun, M Bagchi, and *S J Stohs*. Depts. of Pharmacology and Pharmaceutical Sciences, Creighton University, Omaha, NE.

#217 **RELATIONSHIPS AMONG CONCENTRATIONS OF DIOXIN AND FURAN CONGENERS IN HUMAN ADIPOSE TISSUE: MULTIVARIATE STATISTICAL ANALYSES.** *A Marcus*. Battelle Memorial Institute, RTP, NC.

#218 **DISPOSITION AND ABSORPTION OF INTRATRACHEAL, ORAL, AND INTRAVENOUS ^{36}TCDD IN MALE FISCHER RATS.** J J Diliberto*, J A Jackson**, *L S Birnbaum**. *HERL, US EPA, RTP, NC; **METI, RTP, NC.

#219 **A PHARMACODYNAMIC MODEL OF TRIGLYCERIDE TRANSPORT AND DEPOSITION DURING FEED DEPRIVATION OR AFTER TREATMENT WITH 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) IN THE RAT.** *W L Roth*, *L W D Weber*, B U Stahl, and *K Rozman*. Department of Pharmacology, University of Kansas Medical Center, Kansas City, KS, and Section of Environmental Toxiology, GSF-Institut fur Toxikologie, Neuherberg, FRG.

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#220 ***IN VITRO* DERMAL UPTAKE OF 2,3,7,8-TCDD IN HAIRLESS MOUSE AND HUMAN SKIN FROM LABORATORY-CONTAMINATED SOILS.** *M A Gallo*, M S Rahman*, J L Zatz* and R J Meeker. UMDNJ-RWJ Med. School; *College of Pharmacy, Rutgers Univ., Piscataway, NJ.

#221 **COMPARATIVE *IN VITRO* PERMEATION OF TCDD THROUGH HAIRLESS MOUSE AND HUMAN SKIN.** M S Rahman*, J L Zatz*, *T H Umbreit*, and *M A Gallo*. UMDNJ-RWJ Medical School, and *College of Pharmacy, Rutgers University, Piscataway, NJ.

#222 **EFFECTS OF *IN UTERO* VERSUS LACTATIONAL EXPOSURE TO 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) ON THE MALE RAT REPRODUCTIVE SYSTEM.** D L Bjerke, *R W Moore*, and *R E Peterson*. School of Pharmacy, Univ. of Wisconsin, Madison, WI.

#223 **2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) MEDIATED CHANGES IN THE EPIDERMAL GROWTH FACTOR RECEPTOR IN A TWO-STAGE MODEL FOR HEPATOCARCINOGENESIS IN FEMALE RATS.** C H Sewall[1], A M Tritscher[2], *G W Lucier*[2], and *G C Clark*[2]. [1]University of North Carolina, Chapel Hill, NC; and [2]NIEHS, RTP, NC.

#224 **PROTEIN TYROSINE PHOSPHORYLATION AS AN INDICATOR OF 2,3,7,8,-TETRACHLORODIBENZO-p-DIOXIN EXPOSURE *IN VIVO* AND *IN VITRO*.** X Ma, N Mufti, and *J G Babish*. Deepartment of Pharmacology, NYS College of Veterinary Medicine, Cornell University, Ithaca, NY.

#226 **INHIBITION OF INSULIN-LIKE GROWTH FACTOR-I-INDUCED GROWTH OF MCF-7 HUMAN BREAST CANCER CELLS BY 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) AND RELATED COMPOUNDS.** H Liu, T Narasimhan and *S Safe*. Dept. Physiol. and Pharmacol., Texas A and M University, College Station, TX.

#227 ***IN UTERO* AND LACTATIONAL 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) EXPOSURE DECREASES ANDROGENIC RESPONSIVENESS OF MALE SEX ORGANS AND PERMANENTLY INHIBITS SPERMATOGENESIS AND DEMASCULINIZES SEXUAL BEHAVIOR IN RATS.** *R W Moore*, TA Mably, D L Bjerke, and *R E Peterson*. Sch. of Pharmacy and Environ. Toxicol Ctr., Univ. Wisc., Madison, WI.

#228 **DEVELOPMENTAL TOXICITY OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) IN HAN: WISTAR RATS.** H Huuskonen, M Unkila, R Pohjanvirta and J Tuomisto. National Public Health Institute, Dept. of Environ Hygiene and Toxicology, Kuipio, Finland. Sponsor: *K Savolainen*.

#229 **DECREASED SENSITIVITY TO 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) TOXICITY IN A TCDD-IMPACTED *FUNDULUS HETEROCLITUS* POPULATION COMPARED TO A TCDD-NONIMPACTED POPULATION.** R Prince, and *K R Cooper*. Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#230 **INCREASED PARASITEMIA IN CULTURED HUMAN RED BLOOD CELLS (RBCs) BY DIRECT EXPOSURE TO 2,3,7,8-TCDD.** H M Kim*, I P Choi*, and *M P Holsapple***. GERI/KIST, Daejon, Korea* and MCV/VCU, Richmond, VA.**.

#231 **A PHARMACODYNAMICALLY RESPONSIVE MODEL OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) TRANSFER BETWEEN LIVER AND FAT AT LOW AND HIGH DOSES.** *K Rozman*, *W L Roth*, and *L W D Weber*. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS, and Section of Environmental Toxicology, GSF-Institut fur Toxikologie, Neuherberg, FRG.

#232 ***IN OVO* 2,3,7,8—TETRACHLORODIBENZO-P-DIOXIN (TCDD) DOSE-RESPONSE: COMPARISON OF INDUCTION OF HEPATIC MICROSOMAL ETHOXYRESORUFIN-O-DEETHYLASE (EROD) IN DOMESTIC AND WILD AVIAN SPECIES.** J T Sanderson and *G D Bellward*, Fac. of Pharm. Sci., UBC, Vancouver, Canada.

#233 **STRUCTURE-DEPENDENT TRANSFORMATION OF RAT CYTOSOLIC ARYL HYDROCARBON RECEPTOR.** M Santostefano, J Piskorska-Pliszcynska, V Morrison, L Safe and *S Safe*. Dept. Physiol and Pharmacol., Texas A&M University, College Station, TX.

#234 **2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) INHIBITS MITOGEN INDUCED PROLIFERATION OF T47D HUMAN BREAST CANCER CELLS.** P Fernandez and *S Safe*. Dept. Physiol. Pharmacol., Texas A&M University, College Station, TX.

#235 **MECHANISMS OF DIOXIN TUMOR PROMOTION: IMPLICATIONS FOR RISK ASSESSMENT.** *G Lucier*[1], A Tritscher[1], C Portier[1], *R Maronpot*[1], J Vanden Heuvel[3], J Foley[1], *T Goldsworthy*[3], C Sewall[1], *J Goldstein*[1], Z McCoy[1], and *G Clark*[1]. [1]NIEHS and [2]CIIT, Res. Tri. Pk., NC, [3]Purdue Univ., West Lafayette, IN.

MONDAY, FEBRUARY 24
9:30 a.m.–11:30 a.m.
SHERATON HOTEL-GRAND BALLROOM C

SPECIAL POSTER SESSION FOR MINORITY STUDENTS

Chairpersons: Eileen P. Hayes, E.R. Squibb & Sons Inc., New Brunswick, NJ, and Serrine S. Lau, Division of Pharmacology and Toxicology, University of Texas at Austin, School of Pharmacy, Austin, Texas.

This session, sponsored by the ad hoc Tox 90s Educational Issues Task Force and the SOT Education Committee, provides an overview of research in toxicology by minority scientists and others. The session is organized to demonstrate the diversity of the discipline of toxicology to minority undergraduates and others attending the Annual Meeting who are interested in learning about a variety of areas associated with toxicological investigations.

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MONDAY—WEDNESDAY, FEBRUARY 24–26
10:00 a.m.–12:00 Noon and 2:00 p.m.–4:00 p.m.
CONVENTION CENTER-ROOM 603

MEDLINE DEMONSTRATION

Through the National Library of Medicine (NLM), professionals in toxicology and related areas can have access to more than 40 databases that comprise the most comprehensive collection of information resources in the world. The overview/hands-on sessions will highlight the GRATEFUL MED software used to search the toxicology-related databases that are developed and maintained by NLM's Toxicology Information Program (TIP). The program's on-line factual and bibliographic files contain comprehensive information including chemical identification, the toxicological effects of drugs and other chemicals, and the handling of hazardous wastes and emergency responses. Data on estimated releases of toxic chemicals to the environment, teratology and developmental toxicology, EPA's carcinogenic and noncarcinogenic health risk and regulatory information are also available. Each morning and afternoon (Monday through Wednesday), half-hour overviews will be presented on how to use the GRATEFUL MED software to access and search the Toxicology Information Program files of the National Library of Medicine. The remainder of the time of each session will be used for the attendees to practice hands-on on-line searching. Microcomputer-based tutorials used to teach professionals how to effectively search some of the NLM/TIP files will also be available for examination during the hands-on sessions.

MONDAY, FEBRUARY 24
12:00 Noon–1:00 p.m.
SHERATON HOTEL-GRAND BALLROOM A AND B

GRADUATE STUDENT LUNCHEON

Sponsored by the SOT Education Committee. Open to all graduate student registrants. Please RSVP through the SOT office—tickets will not be used this year, but reservations are required. If you are not certain you have registered, please check with Trish Small in the Headquarters office, Sheraton Hotel—Juniper/Madrona Rooms, before 4:00 p.m. on Sunday.

MONDAY AFTERNOON, FEBRUARY 24
1:00 p.m.–4:00 p.m.
CONVENTION CENTER—BALLROOM 6A

SYMPOSIUM: MOLECULAR MECHANISMS UNDERLYING CHEMICAL ALTERATIONS OF GENE EXPRESSION

Chairperson: James L. Stevens, W. Alton Jones Cell Center, Lake Placid, NY

Exposure of humans or experimental animals to a variety of toxic agents can result in damage to the lungs and can also exacerbate existing lung abnormalities such as asthma or bronchitis. The ultimate response of the lungs to toxicants is dependent on a number of factors including the activity of cells that act as effectors of lung injury, inflammation and repair. These cells which include macrophages, epithelial cells and fibroblasts respond to environmental challenge by becoming "activated" and releasing soluble mediators that augment tissue injury and modify the functioning of other cells within the lungs. Thus, lung injury results from a complex network of interactions between the various cellular components of the lungs and their mediators. This symposium will focus on the contribution of macrophages, fibroblasts and epithelial cells to toxicant induced lung injury, inflammation and disease. The role of potential mediators of toxicity including: eicosinoids, cytokines, growth factors, and reactive oxygen intermediates, will be discussed. Selective aspects of the response of the lungs to these mediators at the molecular level will also be discussed, as will recent studies illustrating key cell:cell interactions and the associated mediator networks. Finally, the various presentations will show how molecular and cellular interactions in the lung may be significant in the pathogenesis of chronic lung disease.

#236	1:00	**MOLECULAR MECHANISMS UNDERLYING CHEMICAL ALTERATIONS OF GENE EXPRESSION: INTRODUCTION.** *J L Stevens*. W Alton Jones Cell Science Center, Lake Placid, NY.
#237	1:15	**COUPLING BIOCHEMICAL MECHANISMS OF TOXICITY TO CHANGES IN GENE EXPRESSION.** *J L Stevens*, K Yu, Q Chen and M Halleck. The W Alton Jones Cell Science Center, Lake Placid, NY.
#238	1:35	**THE MOLECULAR RESPONSE TO DNA DAMAGE: ACTIVATION OF GADD153 GENE EXPRESSION.** N J Holbrook, J D Luethy, J S Park, J D Bartlett, and J Fargnoli. National Institute on Aging, Baltimore, MD.
#239	2:10	**REGULATION OF GLUTATHIONE S-TRANSFERASE AND QUINONE REDUCTASE GENE EXPRESSION.** C B Pickett, T H Rushmore, and L V Favreau. Merck Frosst Centre for Therapeutic Research, Pointe Clair, Dorval, Quebec, Canada.
#240	2:45	**ISOLATION AND CHARACTERIZATION OF HUMAN TARGET GENES FOR 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD).** *W F Greenlee*[1], and *T R Sutter*[2]. [1]Purdue University, West Lafayette, IN and [2]The Johns Hopkins University, Baltimore, MD.
#241	3:20	**RECEPTOR-MEDIATED PEROXISOME PROLIFERATOR ACTION.** J Tugwood, I Issemann, and S Green. ICI Central Toxicology Laboratory, Alderley Park, Macclesfield, Cheshire, UK.

MONDAY AFTERNOON, FEBRUARY 24
1:00 p.m.–4:00 p.m.
CONVENTION CENTER—BALLROOM 6C

SYMPOSIUM: TOXICITY ASSESSMENT OF MERCURY VAPOR FROM DENTAL AMALGAMS

Sponsored by the Metals Specialty Section

Chairpersons: Don Galloway, FDA, Rockville, MD and Peter L. Goering, FDA, Rockville, MD

In terms of the number of exposed individuals, the most prevalent source of deliberate mercury (Hg) exposure is almost certainly dental amalgam. Dental amalgam releases mercury (Hg) vapor, which is absorbed by the lung and distributed systemically, concentrating in brain, kidney and fetal tissue. Implications of this Hg exposure are unclear, since no scientific studies have definitively linked amalgam Hg to human disease states. However, claims have appeared in the popular press linking the presence of dental amalgam to a host of adverse health effects. This symposium will present recent research assessing the toxicity of very low level, chronic Hg vapor exposure, with special emphasis on Hg exposure from dental amalgam. Since inhalation exposure to Hg vapor from any source can be expected to produce identical effects, we will broaden our consideration of this issue to consider both laboratory animal and epidemiologic studies of chronic, low-level Hg vapor exposure. The speakers will provide background information on Hg vapor toxicity, toxicokinetics, and critical target organs; present recent animal and human studies on amalgam Hg distribution and associated cell injury; report recent animal studies examining the developmental effects of prenatal exposures to Hg vapor; and present epidemiological evidence of reproductive toxicity among dental assistants occupationally exposed to amalgam Hg.

#242	1:00	**TOXICITY ASSESSMENT OF MERCURY VAPOR FROM DENTAL AMALGAMS: INTRODUCTION.** *W D Galloway* and P L Goering. Center for Devices and Radiological Health, Food and Drug Administration, Rockville, MD.
#243	1:10	**OVERVIEW OF MERCURY VAPOR TOXICITY, TOXICOKINETICS AND CRITICAL TARGET ORGANS.** *T W Clarkson*. University of Rochester School of Medicine, Rochester, NY.
#244	1:45	**MERCURY FROM AMALGAM TOOTH FILLINGS: ITS TISSUE DISTRIBUTION AND EFFECTS ON CELL FUNCTION.** F L Lorscheider, A O Summers*, P O Magner and M J Vimy. University of Calgary, Faculty of Medicine, Alberta, Canada and *University ofGeorgia, Dept. of Microbiology, Athens, GA.
#245	2:20	**PRENATAL EXPOSURE TO MERCURY VAPOR: EFFECTS ON BRAIN DEVELOPMENT.** M Berlin, J Hua, B Logdberg, and K Warvinge. University of Lund, Institute of Environmental Medicine, Lund, Sweden.
#246	2:55	**REDUCED FERTILITY AMONG DENTAL ASSISTANTS WITH OCCUPATIONAL EXPOSURE TO MERCURY.** A Rowland*, D Baird, C Weinberg, D Shore, C Shy, and A. Wilcox. National Institute Environmental Health Sciences, Research Triangle Park, NC.

MONDAY AFTERNOON, FEBRUARY 24
1:00 p.m.–3:30 p.m.
CONVENTION CENTER—ROOM 607

PLATFORM SESSION: HEPATIC TOXICITY

Chairpersons: Harihara M. Mehendale, University of Mississippi, Jackson, MS and Neill H. Stacey, NIOSH, Sydney, Australia

#247	1:00	**COLCHICINE DOES NOT IMPAIR HEPATOBILIARY FUNCTION AT ANTIMITOTIC DOSE.** V C Rao and *H M Mehendale*. Dept. of Pharmacol. and Toxicol., Univ. MS Med. Ctr., Jackson, MS.
#248	1:15	**A23187 KILLS HEPATOCYTES INDEPENDENT OF ATP DEPLETION AND CHEMICAL HYPOXIA KILLS WITHOUT DNA FRAGMENTATION.** L M Kamendulis and *G B Corcoran*. Toxicology Program, Univ. New Mexico, Albuquerque, NM.
#249	1:30	**HEPATOTOXICITY OF TUMOR NECROSIS FACTOR-α IN ISOLATED MOUSE HEPATOCYTES.** G M Adamson, and *R E Billings*. Depts. of Surgery and Pharmacology, School of Medicine, University of Nevada, Reno, NV.
#250	1:45	**CYTOTOXICITY OF SEVEN HEPATOTOXIC AGENTS IN THE HUMAN HEPATOMA-DERIVED CELL LINE HepG2.** M Samblebe and *C-P Siegers*. Institute of Toxicology, Medical University of Luebeck, FRG.
#251	2:00	**ACAT INHIBITOR INDUCES MILD HEPATOTOXICITY IN RAT AND GRANULOMATOUS HEPATITIS ASSOCIATED WITH CRYSTALS IN KUPFFER'S CELLS IN DOG.** C E Hunt, G M Funk, J P Vrbancic and *T W Petry*. Drug Safety Research, Upjohn Laboratories, Kalamazoo, MI.
#252	2:15	**ACUTE CYTOTOXICITY AND LAMELLAR BODY INDUCTION POTENTIAL OF AN ANTIARRHYTHMIC COMPOUND AND ENANTIOMERS IN CULTURED RAT HEPATOCYTES.** C T Cramer and R G Ulrich. Investigative Toxicology Research, The Upjohn Co., Kalamazoo, MI. Sponsor: *T W Petry*.
#253	2:30	**ATP PROTECTS AGAINST CHLORDECONEAMPLIFIED INTERACTIVE TOXICITY AND LETHALITY OF CARBON TETRACHLORIDE.** M G Soni and *H M Mehendale*. Dept. Pharmacol. and Toxicol., Univ of MS Med. Ctr., Jackson, MS.
#254	2:45	**INDUCTION OF RAT HEPATIC CYTOCHROME P450 IIE1 BY METHANOL: ITS ROLE IN THE ENHANCEMANT OF CARBON TETRACHLORIDE HEPATOTOXICITY.** J W Allis, *J E Simmons*, B L Robinson, A McDonald and D E House. Health Effects Research Laboratory, US EPA, Research Triangle Park, NC.
#255	3:00	**EFFECTS OF TETRACHLOROETHYLENE AND HEXACHLOROBUTADIENE ON INDIVIDUAL SERUM BILE ACIDS IN RATS.** *N H Stacey* and C Bai. National Institute of Occupational Health and Safety, Sydney, Australia.
#256	3:15	**PROTECTIVE DOSE OF CCl_4 AUGMENTS HEPATOCELLULAR REGENERATION DURING CCl_4 AUTOPROTECTION.** K N Thakore and *H M Mehendale*. Dept. of Pharmacol. and Toxicol., Univ. of MS Med Ctr, Jackson, MS.

MONDAY AFTERNOON, FEBRUARY 24
1:00 p.m.–3:30 p.m.
CONVENTION CENTER—ROOM 608

PLATFORM SESSION: IMMUNOTOXICOLOGY I

Chairpersons: Gary J. Rosenthal, NIEHS, Research Triangle Park, NC and Ralph J. Smialowicz, US EPA, Research Triangle Park, NC

#257 1:00 **QUANTITATION OF METABOLIC ENZYME LEVELS IN ACTIVATED IMMUNE CELLS.** *D R Germolec*[1,2], N H Adams, E Corsini[2], P L Pollock[2], C E Comment[2], *G J Rosenthal*[2], *E Hodgson*[1] and *M I Luster*[2]. [1]Toxicology Dept, North Carolina State University, Raleigh, NC; [2]Immunotoxicology Group, Systems Toxicity Branch, NIEHS, RTP, NC.

#258 1:15 **GENERATION OF THE 7,8-DIHYDRO-9, 10-EPOXY-7,8,9,10-TETRAHYDROXY-BENZO(a)PYRENE BY MURINE SPLENIC MACROPHAGES.** G S Ladics, *T T Kawabata*, *A E Munson*, *K L White*, Jr. Dept. Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA.

#259 1:30 **ASBESTOS INDUCED STIMULATION OF INTERLEUKIN 8 FROM HUMAN PULMONARY TYPE II-LIKE EPITHELIAL CELLS.** *G J Rosenthal*, E Corsini, W Craig, L Y Kong. National Institute of Environmental Health Sciences, RTP, NC.

#260 1:45 **SERUM MODULATION OF THE EFFECTS OF TCDD ON *IN VITRO* ANTIBODY RESPONSE.** D L Morris, and *M P Holsapple*. MCV/VCU, Richmond, Va.

#261 2:00 ***IN VITRO* EVALUATION OF DRUG-INDUCED TOXIC EFFECTS ON THE IMMUNE SYSTEM USING HUMAN PERIPHERAL BLOOD LYMPHOCYTES.** *M I Pallardy*[1,2], R Roger[1] and C Bohoun[1,2]. [1]Laboratoire de Toxicologie, Faculté de Pharmacie Paris XI, Chatenay-Malabry, France; [2]Laboratoire de Biochimie B, Institut G.Roussy, Villejuif, France.

#262 2:15 **ALTERED C3 PRODUCTION BY HEPATOCYTES FOLLOWING TCDD EXPOSURE: *IN VIVO* AND *IN VITRO* STUDIES.** W Q Lin and *K L White, Jr.* Dept. Pharmacol/Toxicol, Medical College of Virginia/VCU, Richmond VA.

#263 2:30 ***IN VITRO* AND *IN VIVO* EVALUATION OF 6-HYDROXYDOPAMINE AND 5-HYDROXYDOPAMINE ON THE PRIMARY ANTIBODY RESPONSE IN B6C3F1 MICE.** T L Spriggs and B A Fuchs. Dept. Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA. Sponsor: *A E Munson*.

#264 2:45 **INSENSITIVITY OF IL-4 MEDIATED B CELL ACTIVATION PATHWAYS TO 7,12-DIMETHYLBENZ(A)ANTHRACENE (DMBA).** D P Davis and *S W Burchiel*. The Univ. of New Mexico College of Pharmacy, Toxicology Program, Albuquerque, NM.

#265 3:00 **MECHANISIMS OF IMMUNOMODULATION BY Δ9-THC.** A R Schatz, S C Wood, F K Kessler, S D Jordan, *B R Martin*, and *N E Kaminski*. Dept. of Pharmacology and Toxicology, Medical College of Virginia/VCU, Richmond, VA.

#266 3:15 **MODULATION OF RECEPTOR MEDIATED PHAGOCYTOSIS AND LYSOSOMAL ENZYME ACTIVITIES OF MURINE PERITONEAL MACROPHAGES BY AMMONIUM METAVANADATE.** K Vaddi and C I Wei. Food Science and Human Nutrition Dept., Univ. of Florida, Gainesville, FL. Sponsor: *M D Cohen*.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—ROOM 605

POSTER DISCUSSION SESSION: FIBER TOXICITY

Chairpersons: Neil F. Johnson, Inhalation Toxicology Research Institute, Albuquerque, NM and Rudolph Valentine, Haskell Laboratory, Newark, DE

Displayed: 1:00 p.m.–4:00 p.m.
Discussion: 2:00 p.m.–4:00 p.m.

#267 **IMPORTANCE OF FIBER DIMENSIONS IN THE CYTOTOXICITY OF MINERAL FIBERS TO CHINESE HAMSTER OVARY CELLS IN CULTURE.** G A Hart, M M Newman, W B Bunn, and *T W Hesterberg*. Manville Technical Center, Littleton, CO.

#268 **PULMONARY CELLULAR EFFECTS AND CLEARANCE IN RATS FOLLOWING HIGH DOSE EXPOSURES TO INHALED ULTRAFINE KEVLAR® ARAMID FIBERS.** *D B Warheit*, K Duespohl, and M A Hartsky, Du Pont, Haskell Lab., Newark, DE.

#269 **10-DAY INHALATION STUDY WITH FIBER LUBRICANT AEROSOLS.** *R Valentine*, *D B Warheit*, M C Carakostas, and G T Makovec. Du Pont, Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#270 **PULMONARY TOXICITY STUDIES IN RATS WITH A RESPIRABLE-SIZED EXPERIMENTAL CARBON FIBER.** J F Hansen, M C Carakostas, M A Hartsky, and *D B Warheit*. Du Pont Co., Haskell Lab., Newark, DE.

#271 **GLASS FIBER DISSOLUTION IN CULTURED RAT ALVEOLAR MACROPHAGES AND RESPIRATORY TRACT EPITHELIAL CELLS.** *N F Johnson*. Inhalation Toxicology Research Institute, Albuquerque, NM.

#272 **CHRONIC INHALATION TOXICITY OF FIBROUS GLASS IN RATS.** *T W Hesterberg*, W B Bunn, *J G Hadley**, D M Bernstein**, and R Anderson. Manville Technical Center, Littleton, CO; *Owens Corning Tech. Center, Granville, OH; **Research and Consulting Co., Geneva, Switzerland.

#273 **BIOPERSISTENCE OF MANMADE VITREOUS FIBERS AND CROCIDOLITE ASBESTOS IN RATS.** W Miller, R Musselman*, D Bernstein**, O Kamstrup***, W Bunn and *T Hesterberg*. Manville Technical Center, Littleton, CO; *USG Corp. Chicago, IL; **RCC, Geneva; ***Rockwool International, Denmark.

#274 **A COMPARISON OF THE EFFECTS OF CHRYSOTILE AND CROCIDOLITE ASBESTOS IN RATS AFTER INHALATION FOR 10 MONTHS.** *E E McConnell*, Raleigh, NC; *T W Hesterberg*, Manville, Co., Denver, CO; *J G Hadley*, Owens-Corning Fiberglass, Granville,OH; *D M Bernstein*, Research Consulting Co, Geneva, Switzerland and *R W Mast*, Carborundum Co., Niagara Falls, NY.

#275 **THE MODIFICATION OF MINERAL FIBRES AND EFFECTS ON TOXICITY.** R C Brown, J A Hoskins, P Carthew and I Alexander. MRC Toxicology Unit, Carshalton, Surrey, UK and Morgan Material Technology, Stourport on Severn, Worcestershire, UK. Sponsor: *L Smith*

#276 **DUAL BRUSH FIBER GENERATOR FOR INHALATION RESEARCH.** B A Wong, and *O R Moss*. CIIT, RTP, NC.

#277 **AIRWAY BRANCHING PATTERNS DETERMINE REGIONAL ALVEOLAR DEPOSITION PATTERNS OF INHALED PARTICLES OR FIBERS.** M A Hartsky, C G Plopper, and *D B Warheit*. Du Pont Haskell Laboratory, Newark, DE, and Univ. of California, Davis.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—ROOM 609

POSTER DISCUSSION SESSION: *IN VITRO* MODELS FOR ASSESSMENT OF NEPHROTOXICITY

Chairpersons: A. Jay Gandolfi, University of Arizona, Tucson, AZ and Rick G. Schnellmann, University of Georgia, Athens, GA

Displayed: 1:00 p.m.–4:00 p.m.
Discussion: 2:00 p.m.–4:00 p.m.

#278 **THE EFFECTS OF SULFHYDRAL REAGENTS ON TRANSPORT OF ORGANIC COMPOUNDS BY RENAL MEMBRANE VESICLES.** R A Ansari, R S Thakran, and *W O Berndt*. Dept. of Pharmacology, University of Nebraska Medical Center, Omaha, NE.

#279 **PATTERNS OF *IN VIVO* AND *IN VITRO* BIOCHEMICAL INDICES OF RENAL CHANGE IN THE DEVELOPING AND AGING MINIPIG.** R C Braunberg, L H Garthoff, A O Sager, M A Khan, *L Friedman*. Food and Drug Administration, Beltsville, MD.

#280 **CEPHALOSPORIN CYTOTOXICITY IN SUSPENSIONS OF RABBIT PROXIMAL TUBULES (RPT): IMPORTANCE OF THIOL STATUS AND IRON-CATALYZED LIPID PEROXIDATION.** G D Ponsler and *G F Rush*. Lilly Research Laboratories, Lilly Corporate Center, Indianapolis, IN.

#281 **SHAKING DISHES OF RENAL PROXIMAL TUBULE CELLS (RPTC) IN PRIMARY CULTURE INCREASES SENSITIVITY TO ANTIMYCIN A.** R D Griner, *M D Aleo*, and *R G Schnellman*. Dept. Physiology and Pharmacology, University of Georgia, Athens, GA.

#282 **PROTEIN KINASE INHIBITORS ALTER GLYCINE RECEPTOR AGONIST-MEDIATED CYTOPROTECTION OF RENAL PROXIMAL TUBULES (RPT).** *M D Aleo* and *R G Schnellmann*. Dept. Physiology and Pharmacology, University of Georgia, Athens, GA.

#283 **PHOSPHOLIPASE ACTIVATION IN ACUTE RENAL PROXIMAL TUBULE CELL DEATH.** X Yang and *R G Schnellmann*. Colleges of Veterinary Medicine and Pharmacy, University of Georgia, Athens, GA.

#284 **ACUTE RENAL PROXIMAL TUBULE CELL DEATH IS NOT THE RESULT OF ENDONUCLEASE ACTIVATION.** *R G Schnellmann* and M M Compton. Depts. of Physiology and Pharmacology, and Poultry Science, University of Georgia, Athens, GA.

#285 **ROLE OF CYSTEINE CONJUGATE β-LYASE AND CYSTEINE CONJUGATE S-OXIDASE IN CYTOTOXICITY IN PROXIMAL AND DISTAL TUBULAR CELLS FROM RAT KIDNEY.** *L H Lash*, P J Sausen, and *A A Elfarra*. Dept. Pharmacology, Wayne State University School of Medicine, Detroit, MI and Dept. Comp. Bioscience and Environmental Toxicology Center, University of Wisconsin, Madison, WI.

#286 **NEPHROTOXICITY OF QUINOLINIUM AND PYRIDINIUM COMPOUNDS IN PRECISION-CUT RABBIT RENAL CORTICAL SLICES.** H V Sheevers, T M Wunz, T P Wunz, S H Wright, *K Brendel, A J Gandolfi*. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#287 **CO-CULTURE OF RABBIT CORTICAL KIDNEY SLICES AND LIVER SLICES: PHENACETIN TOXICITY.** S M Wishnies, *A J Gandolfi*, and *K Brendel*. Department of Pharmacology, University of Arizona, Tucson, AZ.

#288 **INVESTIGATION OF THE NEPHROTOXICITY OF ELLIPTICINE AND SEVERAL DERIVATIVES IN *IN VITRO* RENAL SYSTEMS.** S J McGuinness, D R Rankin, *A J Gandolfi*, *K Brendel*. Department of Anesthesiology, University of Arizona, Tucson, AZ.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: RISK ASSESSMENT I

Chairperson: Bruce E. Fishman, ENSR, Acton, MA

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 1:00 p.m.–2:30 p.m.

#289 **COMPUTER-ASSISTED ESTIMATION OF CHRONIC LOAEL BASED UPON QUANTITATIVE STRUCTURE ACTIVITY RELATIONSHIPS (QSAR).** M M Mumtaz, D J Reisman, W B Peirano, L Knauf, and C DeRosa*. U S EPA, Cincinnati, OH; K Enslein and V Gombar, HDi, Rochester, NY; V M S Ramanujam, UTMB, Galveston, TX, *Currently, ATSDR, Atlanta, GA. Sponsor: *H Choudhury.*

#290 **ASSESSING THE SEVERITY OF CARCINOGENIC HEALTH EFFECTS.** *R A Schoof*, and C P Boyce. PTI Environmental Services, Bellevue, WA.

#291 **CARCINOGENICITY RANKING OF POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS.** T R O'Bryan, U.S. Environmental Protection Agency, Washington, DC and R H Ross, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN. Sponsor: *R A Young*

#292 **REVIEW OF THE GENETIC AND CARCINOGENIC ACTIVITY OF THE NITRATED MUNITIONS CHEMICALS.** *C O Abernathy* and W C Roberts. Human Risk Assessment Branch, Office of Water, US EPA, Washington, DC.

#293 **SURVEY OF LONG-TERM NONCARCINOGENIC TOXICITY OF NITRATED MUNITIONS CHEMICALS IN ANIMALS.** *J J Murphy*, W C Roberts, and *C O Abernathy*. Oncology Branch, Office of Toxic Substances, and Human Risk Assessment Branch, Office of Water, U S Environmental Protection Agency, Washington, DC.

#294 **TOXICOLOGY PROFILE, DIETARY EXPOSURE AND RISK ASSESSMENT: DIMETHOMORPH, A NEW FUNGICIDE.** G Veenstra[1], L Miller[2], C B Sandusky[3], J R Tomerlin[3] and A C Katz[3]. [1]Shell Internationale Petroleum, Maatschappij B.V., The Hague. [2]Biologic, Inc., Danbury, CT. [3] Technical Assessment Systems, Inc., Washington, DC. Sponsor: *R Slesinski*

#295 **AQUATIC RISK ASSOCIATED WITH THE FUNGICIDE FOLPET.** *E B Gordon*. Makhteshim-Agan (America) Inc., New York, NY.

#296 **TOXICOLOGICAL PROFILE OF 2-ETHYLHEXYL-2-CYANO-3,3-DIPHENYLACRYLATE(OCTOCRYLENE).** M R Odio, S Azri-Meehan, S H Robinson, and *A L Kraus*. The Procter & Gamble Co., Shelton, CT.

#297 **RISK ASSESSMENT OF EXPOSURE TO CHLOROFORM IN CARBONATED BEVERAGES.** J M Christensen[1], J P Brown[2], R J Jackson[3], *A M Fan*[2], S M Loscutoff[3], and *M J DiBartolomeis*[2]. [1]CA Public Health Foundation, Berkeley, CA; [2]CA Office or Environmental Health Hazard Assessment, Berkeley, CA; [3]CA Department of Health Services, Sacramento, CA.

#298 **RISK ASSESSMENT OF ACETONE, ETHYL ACETATE AND ETHYL ETHER AS A CHEMICAL MIXTURE.** *H Choudhury*, S Griffin, M Mumtaz. US EPA, Cinncinnati and Washington, DC; and R Ross, Oak Ridge National Laboratory, TN.

#299 **USE OF A PHARMACOKINETIC MODEL IN CANCER RISK ASSESSMENT FOR VINYL BROMIDE.** A G Salmon, L Monserrat*and J P Brown. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency and *California Public Health Foundation. Sponsor: *L Zeise*.

#300 **PHARMACOKINETICS AND THE ASSESSMENT OF CARCINOGENIC RISK FROM CHLOROFORM.** L Rhomberg. Pharmacokinetics Focus Group of the Office of Health And Environmental Assessment, US EPA, Washington, DC. Sponsor: *D V Singh*.

#301 **EVALUATION OF ONCOGENIC POTENTIAL OF BEACON™.** *K L Pavkov*[1], C Breckenridge[2], W Campbell[2], T Capps[2] and *J T Stevens*[2]. Environmental Health Center, Agricultural Div., CIBA-GEIGY Corp., Farmington, CT[1] and Greensboro, NC[2].

#302 **A SMALL FISH MODEL FOR ASSESSING CANCER RISK AT LOW CARCINOGEN CONCENTRATIONS.** W W Walker, W E Hawkins, R M Overstreet, and *M A Friedman*. Gulf Coast Research Laboratory, Ocean Springs, MS and American Cyanamid Company, Wayne, NJ.

#303 **IMPLICATIONS OF DIFFERING APPROACHES FOR HEALTH RISK ASSESSMENTS: A COMPARISON OF EPA'S IRIS AND ACGIH'S TLV VALUES.** *D C Rees*, *R H Steele*, W D Taylor and *R L Suber*. RJ Reynolds Tobacco Co., Bowman Gray Technical Center, Winston-Salem, NC.

#304 **PROBABILISTIC EXPOSURE ASSESSMENT USING A MONTE CARLO-BASED MODEL.** S Dwyer, D Lincoln, and A Silvers. CH2M Hill, Bellvue, WA, EPRI, Palo Alto, CA. Sponsor: *R D Smith*.

#305 **APPLICATION OF A BAYESIAN STATISTICAL APPROACH TO RESPONSE ANALYSIS OF NONCANCER TOXIC EFFECTS.** A M Jarabek[1] and V Hasselblad[2]. [1]US Envionmental Protection Agency, RTP, NC; [2]Duke University, Durham, NC. Sponsor: *J A Graham*.

#306 **TESTING A NOVEL APPROACH TO ESTIMATE HEALTH RISK ABOVE THE REFERENCE DOSE (RfD)/REFERENCE CONCENTRATION (RfC).** *M L Dourson*, J L Cicmanic, and K A Poirier. USEPA, Office of Research and Development, Cincinnati, OH.

#307 **PCBS AND TOXIC EQUIVALENCY FACTORS (TEFs): DO TEFS PREDICT CARCINOGENICITY?** W H Curley, M A Smith, S Hamilton, and *J A Moore*. Law Environmental, Atlanta, GA; General Electric Corp, Fairfield, CT; and IEHR, Washington, DC.

#308 **REVISED CANCER SLOPE FACTORS (CSF) FOR SPECIFIC POLYCHLORINATED BIPHENYLS (PCB) BASED ON CURRENT PATHOLOGY NOMENCLATURE.** M A Smith, W H Curley and *J A Moore*. Law Environmental, Atlanta, GA and IEHR, Washington, DC.

#309 **UNCERTAINTY FACTOR DEVELOPMENT METHODOLOGY FOR NONHUMAN RECEPTORS.** *A B Chandler*, J C Baker, F M Applehans, and K L Ford. Environmental Science and Engineering, Gainesville, FL.

#310 **CHEMICAL SCREENING FOR POTENTIAL ADDITION TO THE TOXICS RELEASE INVENTORY (TRI) UNDER EPCRA SECTION 313.** B Jones, S Diwan, A Smith*, M Doa*. ICF International, Inc, Fairfax, VA, and *U.S. Environmental Protection Agency, Washington, D.C. Sponsor: *K Kasprzhk*.

#311 **LEVEL OF CONCERN ANALYSIS FOR EXTREMELY HAZARDOUS SUBSTANCES (EHS) UNDER SARA SECTION 302.** S Diwan, S C DeVito*, A Smith*, M Doa*, and P Tobin.* Clement International Corporation, Fairfax, VA, and *US Environmental Protection Agency, Washington, DC. Sponsor: *L M Anderson*

#312 **PACKAGING CHILD OBSERVATION STUDY: HOW PACKAGE DESIGN CAN INFLUENCE POTENTIAL CHILD EXPOSURE.** L A Scott, S Baldwin, and T L Nusair. The Procter & Gamble Co., Cincinnati, OH. Sponsor: *L J Sauers*.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: *IN VIVO* DEVELOPMENTAL TOXICOLOGY

Chairpersons: Craig Harris, University of Michigan, Ann Arbor, MI and Calvin C. Willhite, California Department of Health Services, Berkeley, CA

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 2:30 p.m.–4:00 p.m.

#313 **EFFECTS OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS ON CHICKEN EMBRYOGENESIS.** K M Brown[1], P G Doynov[2], M K Barber[1], T L Litovitz[3], and T A Litovitz[2]. [1]Dept. Biol. Sci., The George Washington Univ., Wash., DC; [2]Physics Dept., Catholic Univ., Wash., DC; [3]Natl. Capital Poison Cntr., Georgetown Univ., Wash., DC; [4]Center for Devices and Radiological Health, FDA, Rockville, MD. Sponsor: *P L Goering*[4].

#314 **DOSE-DEPENDENT EFFECTS OF ZYGOTIC EXPOSURE TO ETHYLENE OXIDE ON MOUSE SKELETAL DEVELOPMENT.** J E Polifca, J C Rutledge, G L Kimmel, V V Dellarco, and W M Generoso. University of Washington, Seattle, WA; Children's Hospital Medical Center, Seattle, WA; EPA, Washington, DC; Oak Ridge National Laboratory, Oak Ridge, TN. Sponsor: *E M Faustman*.

#315 **THE PERSISTENCE OF MESONEPHRIC DUCTS AND MESONEPHRIC TUBULES UNTIL TERM IN RAT FETUSES.** L P Juhasz and *N H Agnish*. Department of Toxicology and Pathology, Hoffmann-La Roche Inc., Nutley, NJ.

#316 **SUPERNUMERARY RIB (SNR) LENGTH IN MICE: SIZE DISTRIBUTION, DOSE RESPONSE, AND CORRELATION WITH MALFORMATIONS.** *N Chernoff* and *J M Rogers*. Developmental Toxicology Division, US EPA, Research Triangle Park, NC.

#317 **SCALE-UP OF A PHYSIOLOGICALLY-BASED PHARMACOKINETIC (PBPK) MODEL FOR 2-METHOXYETHANOL (2-ME) AND 2-METHOXYACETIC ACID (2-MAA) FROM PREGNANT MICE TO RATS.** *D O Clarke*, K L Willett, B A Elswick, *R B Connolly* and *F Welsch*. CIIT, Research Triangle Park, NC.

#318 **EXENCEPHALY IN CD-1 MICE FOLLOWING A SINGLE ADMINISTRATION OF 2-METHOXY-ETHANOL (2-ME).** K K White, B A Elswick, and *F Welsch*. CIIT, RTP, NC.

#319 **METHANOL-INDUCED EXENCEPHALY IN MICE IS CAUSED BY A NEURAL TUBE CLOSURE DEFECT.** B Bolon, D C Dorman, K T Morgan, *F Welsch*. CIIT, RTP, NC.

#320 **DEVELOPMENTAL TOXICITY EVALUATION OF DIETHYLENE GLYCOL (DEG) ADMINISTERED BY GAVAGE TO CD® (SPRAGUE-DAWLEY) RATS.** T L Neeper-Bradley, L C Fisher, D J Tarasi, E H Fowler, and *B Ballantyne*. Bushy Run Research Center/ Union Carbide Chemicals and Plastics Company Inc., Export, PA.

#321 **BLOOD METHANOL CONCENTRATIONS IN THE PREGNANT RAT, DAMS AND PUPS EXPOSED BY INHALATION.** A Sharma, S Stern, S Soderholm, and *B Weiss*. Environmental Health Sciences Center, University of Rochester School of Medicine and Dentistry, Rochester, NY.

#322 **A DEVELOPMENTAL TOXICITY SCREEN IN RATS FOR ASSESSING THE EFFECTS OF DERMAL EXPOSURE TO CHEMICALS FOUND IN THE WORKPLACE.** W H Ford, *F J Koschier*, *S C Lovre*, *R N Roth*, M W Carter, and R E Seegmiller. UBTL, Salt Lake City, UT; ARCO, Los Angeles, CA.

#323 **DEVELOPMENTAL TOXICITY OF MONOETHANOLAMINE (MEA) IN RATS FOLLOWING DERMAL EXPOSURE.** *W J Breslin*, G J Zielke and K E Stebbins. The Toxicology Research Laboratory, Dow Chemical Co., Midland, MI.

#324 **DEVELOPMENTAL TOXICITY STUDIES IN RATS WITH 4-AMINODIPHENYLAMINE (4-ADPA) AND 4-NITRODIPHENYLAMINE (4-NDPA).** *R M Bannister*, *D W Brewster*, *D E Rodwell**, *R E Schroeder*** and J W Barnett, Jr. Monsanto Company, St. Louis, MO, *Springborn Laboratories Inc., Spencerville OH and **Bio/dynamics Inc., East Millstone, NJ.

#325 **DEVELOPMENTAL TOXICITY OF BORIC ACID (BORA) IN NEW ZEALAND WHITE RABBITS.** C J Price, M C Marr, C B Myers, **J J Heindel* and **B A Schwetz.* Research Triangle Institute and *National Toxicology Program/NIEHS, RTP, NC.

#326 **DEVELOPMENTAL AND REPRODUCTIVE (D/R) EFFECTS OF INDIUM TRICHLORIDE IN SWISS MICE.** M W Harris, J D Allen, E A Haskins, and *R E Chapin.* NTP/NIEHS, RTP, NC.

#327 **DEVELOPMENTAL TOXICITY OF ORTHOPHENYLPHENOL (OPP) IN NEW ZEALAND WHITE RABBITS.** C L Zablotny, *W J Breslin* and *R J Kociba.* The Toxicology Research Laboratory, The Dow Chemical Company, Midland, MI.

#328 **THE EFFECTS OF ORAL COCAINE ADMINISTRATION ON PREGNANCY OUTCOME AND FETAL PHYSICAL AND REFLEXIVE DEVELOPMENT IN WISTAR RATS.** K A Benson, S K Rowland and *M C Wilson.* Department of Pharmacology, University of Mississippi School of Pharmacy, University, MS.

#329 **COMPARISON OF TERATOGENIC EFFECTS OF 6-AMINONICOTINAMIDE IN RATS WHEN DOSED ON GESTATION DAY 8, 9, OR 10.** C M Salamon, C M Henwood, C P Lane, J M Miller, and *M J Palazzolo.* Hazleton Wisconsin Inc., Madison, WI.

#330 **TIME-MATED RABBIT TERATOLOGY STUDY.** S M Henwood, J A Nokelby, J M Miller, C P Lane, *M J Palazzolo.* Hazleton Wisconsin Inc., Madison, WI.

#331 **TERATOGENIC EFFECTS OF 3,3',4,4',5-PENTACHLOROBIPHENYL IN C57BL/6 MICE.** K Mayura[1], B A Clement[1], *S Safe*[2] and *T D Phillips*[1]. [1]Department of Veterinary Anatomy and Public Health, [2]Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

#332 **DEVELOPMENTAL TOXICITY STUDY OF IOXILAN INJECTION IN RATS AND RABBITS.** *M D Mercieca*[1], P A Collier[2], T N Merriman[1], J J McKenzie[1], C A Bellamy[1], *D E Rodwell*[1]. [1]Springborn Laboratories, Inc., Spencerville, OH and [2]Cook Imaging Corporation, Bloomington, IN.

#333 **AN EVALUATION OF THE TERATOGENICITY OF CHLOROPENTAFLUOROBENZENE (CPFB).** J R Cooper, B M Jarnot. Armstrong Laboratory, Toxicology Division, Wright-Patterson AFB, OH. Sponsor: *J W Fisher.*

#334 **DEVELOPMENTAL TOXICITY STUDY OF CARBON BLACK OIL (CBO) IN THE RAT.** A Hoberman[1], *M Christian*[1], and *S Lovre*[2], *R Roth*[2], and *F Koschier*[2]. [1]Argus Research Labs. Inc., Horsham, PA and [2]ARCO, Los Angeles, CA.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: OCULAR

Chairperson: Leonard Friedman, USFDA, Laurel, MD

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 1:00 p.m.–2:30 p.m.

#335 **REVIEW OF AN *IN VITRO* BATTERY FOR ESTIMATING THE OCULAR IRRITATION OF SHAMPOOS.** *G S Allgood* and L H Bruner. The Procter & Gamble Company, Cincinnati, OH.

#336 **CAMVA VALIDATION AS AN ALTERNATIVE TO THE DRAIZE OCULAR: PART 2, ALCOHOLS AND ALCOHOL CONTAINING PRODUCTS.** D Cerven, *O Moreno.* MB Research Laboratories, Inc., Spinnerstown, PA.

#337 **QUANTITATIVE EVALUATION TO PREDICT EYE IRRITATION USING HEMOGLOBIN.** T Hayashi[1], H Itagaki[2], U Tamura[1] and *S Kato*[2]. 1:Shiseido Product Research Centre. 2: Shiseido Safety and Analytical Research Centre. Yokohama, Japan.

#338 **EYE IRRITATION STUDIES WITH LINEAR AND CYCLIC POLYDIMETHYLSILOXANE FLUIDS IN RABBITS.** C R Rasmussen and *W H Siddiqui.* Dow Corning Corporation, Midland, MI.

#339 **THE EFFECTS OF ANIMAL RESTRAINT DURING OCULAR IRRITATION TESTING.** A M Kirk[1], W F Heydens[1], *J C Siglin*[2], *R E Rush*[2]. [1]Monsanto Company, St. Louis, MO and [2]Springborn Laboratories, Inc., Spencerville, OH.

#340 **ALBINO VERSUS PIGMENTED RABBIT OCULAR AND SYSTEMIC RESPONSES TO HYDROPHILIC CONTACT LENSES AND .04% BAK.** C Richards, T Docheff, J Spencer, *B Brar.* Allergan, Inc., Irvine, CA.

#341 **ACUTE METHANOL TOXICITY IN SWINE.** D C Dorman[1], J A Dye[2], M P Nassise[3], J Ekuta[1], B Bolon[1], and *M A Medinsky*[1]. [1]CIIT, [2]HERL/USEPA, RTP, NC; [3]College of Vet. Med., NCSU, Raleigh, NC.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: DERMAL

Chairpersons: George Cruzan, Mobil Oil Corp., Princeton, NJ and David R. Mattie, AAMRL/THA, Wright-Patterson AFB, OH

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 2:30 p.m.–4:00 p.m.

#342 ***IN VITRO* TOXICITY OF CONCENTRATED AIR FRESHENER PRODUCTS AND THEIR INGREDIENTS: COMPARISON WITH RABBIT DERMAL IRRITATION.** J S Vergnes, *P D Guiney**, *R C Myers* and E H Fowler. Bushy Run Research Center/ Union Carbide Chemicals and Plastics Company Inc., Export, PA and *S C Johnson & Son, Inc., Racine, WI.

#343 **RABBIT SKIN IRRITATION PRODUCED BY CONCENTRATED AIR FRESHENER PRODUCTS AND THEIR COMPONENTS: COMPARISON OF 24-HR VS 4-HR CONTACT AND EVALUATION OF CORROSIVITY.** *R C Myers*, *P D Guiney**, S M Christopher, and M K Walter. Bushy Run Research Center, Export, PA; *S C Johnson & Son Inc., Racine, WI.

#344 **COMPARISON OF THE NEW ZEALAND WHITE RABBIT AND THE FISCHER 344 RAT AS ANIMAL MODELS FOR REPEATED PERCUTANEOUS TOXICITY STUDIES.** E V Weaver, *S J Hermansky*, D A Neptun, P E Losco and *B Ballantyne*. Bushy Run Research Center/Union Carbide Chemicals and Plastics Company Inc., Export, PA.

#345 **SELECTION OF AN *IN VITRO* TEST BATTERY FOR COMPARING THE RELATIVE DERMAL IRRITANCY POTENTIAL AND BIOLOGICAL ACTIVITY OF FORMULATED COSMETIC PRODUCTS.** W E Dressler*, T J Stephens, E T Spence, Clairol, Inc*., Stamford, CT and In Vitro Alternatives, Inc., Carrollton, TX. Sponsor: *T Re*.

#346 **TOXICITY OF COSMETIC, HOUSEHOLD PRODUCTS, PERSONAL CARE PRODUCTS AND PETROCHEMICALS BY TOPICAL ADMINISTRATION TO THE SKIN^{2TM}FULL-THICKNESS HUMAN SKIN SUBSTRATE.** S Braa, T Donnelly, I Kidd, J Rust and D Triglia. Marrow-Tech, Inc., La Jolla, CA. Sponsor: *D Hobson*.

#347 **A LIVING DERMAL MODEL WITH MAST CELLS (LDM-MC^{TM}).** M Rosenberg, J Lauer, V Theobald. Organogenesis Inc., Cambridge, MA. Sponsor: *P Silber*.

#348 **EVALUATION OF THE COMBINATION OF TWO *IN VITRO* METHODS TO PREDICT PHOTO IRRITATION.** P Kaplan and *V Gordon*, Ropak Laboratories, Irvine CA.

#349 **EVALUATION OF AN *IN VITRO* SKIN PHOTOIRRITATION ASSAY.** *R J Soto*, *V C Gordon*, J Acevedo. S. C. Johnson & Son, Inc, Racine, WI and Ropak Laboratories, Irvine, CA.

#350 **DERMAL TOXICITY STUDIES OF RECOMBINANT HUMAN TRANSFORMING GROWTH FACTOR-β IN RATS AND RABBITS.** G C McCormick, *C P Chow*, *M J Palazzolo**, T G Terrell and *J D Green*. Department of Safety Evaluation, Genentech, Inc., So. San Francisco, CA and *Hazleton Laboratories, Madison, WI.

#351 **EVIDENCE OF DIETARY-INDUCED RESISTANCE TO DERMAL APPLICATION OF AN ORGANOPHOSPHONATE COMPOUND IN NEW ZEALAND WHITE RABBITS.** *D W Hobson*, T H Snider, and *D W Korte, Jr.* Battelle Memorial Institute, Columbus, OH, and US Army Medical Research Inst. of Chem. Defense, Edgewood, MD.

#352 ***IN VIVO* VALIDATION OF AN *IN VITRO* METHOD FOR SCREENING TOPICAL SKIN PROTECTANTS FOR USE AGAINST SULFUR MUSTARD.** T H Snider, and *D W Hobson*. Battelle Memorial Institute, Columbus, OH.

#353 **A COMPARISON OF INFLAMMATORY MEDIATOR RELEASE AND CELL CYTOTOXICITY ENDPOINTS *IN VITRO* FOR PREDICTING SURFACTANT-INDUCED SKIN IRRITATION.** *M P Carver*, R Reigle, Z Nabi, and *S J DeSalva*. Colgate-Palmolive Company, Piscataway, NJ.

#354 **SKIN IRRITATION STUDIES WITH HYDROGEN PEROXIDE.** E R Aguinaldo, *M L Weiner*, C Freeman, J D McCarty, M J Fletcher and R F McConnell. FMC Corporation, Princeton, NJ.

#355 **TOXICITY SCREENING OF N-ALKYL SULFATES IN HUMAN KERATINOCYTES (HaCaT) IN COMPARISON WITH *IN VIVO* HUMAN IRRITATION TEST.** K P Wilhelm*, M Samblebe, and *C P Siegers*. *Klinik fur Dermatologie und Venerologie und Institute fur Toxikologie der Medizinischen Universitat zu Lubek, Lubeck, FRG.

#356 **EFFECT OF pH ON THE SKIN SENSITIZATION POTENTIAL OF ALKENYL SUCCINIC ACIDS.** C Rodriquez, R R Balmbra, C Lally and G Calvin. Procter & Gamble European Technical Center, Brussels, Belgium. Sponsor: *C L Alden*.

#357 **REDUCTION IN MICROVESICLE FORMATION BY NIACINAMIDE 72 HR AFTER SULFUR MUSTARD VAPOR EXPOSURE IN HAIRLESS GUINEA PIGS.** J J Yourick, J S Dawson and L W Mitcheltree. Applied Pharmacology, US Army Med. Res. Inst. Chem. Def. Aberdeen Prv. Grd., MD. Sponsor: *R P Solana*.

#358 **DERMAL SAFETY STUDY IN CATS AND DOGS ON CARPET DEODORIZER (PET FRESH).** *N Ali*, *W K Rumbeiha*, *F W Oehme*, *J A Pickrell*. Comparative Toxicology Laboratories; H W Leipold, P Schoning, Department of Pathology; J R Schewenke, Department of Statistics, Kansas State University, Manhattan, KS; *A M Wolven*, AM Wolven Inc., Atlanta, GA; and *R H Coleman*, Church Dwight Co Inc, Princeton, NJ.

#359 **GROWTH STIMULATION OF CULTURED CELLS FOLLOWING IRRITANT EXPOSURE.** E Bloom, M Sznitowska, J R Polansky, *H I Maibach*. Dept. of Dermatology and the Cellular Pharmacology Laboratories, UC San Francisco, San Francisco, CA.

#360 **THE ASSOCIATION OF SERUM HAPTOGLOBIN WITH THE DERMAL IRRITANT RESPONSE OF RABBITS.** *C T Olson* and T E Eurell, Battelle Memorial Institute, Columbus, OH.

#361 **HISTOLOGIC ANALYSIS OF SKIN LESIONS IN SELECTION OF MAXIMUM TOLERATED DOSES IN RODENT DERMAL BIOASSAYS.** R Osborne, W E Wyder, and G R Johnson. The Procter & Gamble Company, Human and Environmental Safety Division, Cincinnati, Ohio. Sponsor: *L Lehman-McKeeman*.

#362 **SULFUR MUSTARD-INCREASED PROTEOLYSIS FOLLOWING *IN VITRO* AND *IN VIVO* EXPOSURES.** F M Cowan, J J Yourick, C G Hurst, C A Broomfield and W J Smith. US Army Med. Res. Inst. Chem. Def., APG, MD. Sponsor: *T M Shih*.

#363 **PRIMARY RAT KERATINOCYTE CULTURE AS AN *IN VITRO* MODEL FOR THE EVALUATION OF POTENTIAL CYTOTOXICITY OF SURFACTANTS.** *D Acosta* and J Giridhar, Div. of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin, Austin, TX.

#364 **VEHICLE DETERMINES BOTH SKIN PERMEABILITY AND LOCAL TOXICITY INDUCED BY OLEYL ALCOHOL, A POTENT SKIN PENETRATION ENHANCER.** J T Curry, J M Holland, K S Slagell. The Upjohn Co., Kalamazoo, MI. Sponsor: *T W Petry*.

#365 ***IN VITRO* DERMAL ABSORPTION OF P-SUBSTITUTED PHENOLS IN MICE: EFFECT OF AGE.** *M F Hughes*[1], H L Fisher, *L S Birnbaum* and *L L Hall*. [1]METI and HERL, US EPA, Research Triangle Park, NC.

#366 **SKIN: AIR PARTITION COEFFICIENTS FOR VOLATILE CHEMICALS.** *D R Mattie*, G D Bates, G W Jepson, and *J N McDougal*. Toxicology Division, (OL-AL/OET), Armstrong Laboratory, WPAFB, OH.

#367 **PERCUTANEOUS ABSORPTION OF CHLORDANE AND PENTACHLOROPHENOL FROM SOIL.** *H I Maibach*, R C Wester, J Melendres, L Sedik, S DiZio, and M Wade. Dermatology Department, University of California, San Francisco, CA, and Department of Toxic Substance Control, California EPA, Sacramento, CA.

#368 **PERCUTANEOUS SKIN ABSORPTION OF NEAT AND COMMERCIAL PRODUCT OF MALATHION THROUGH HUMAN SKIN AFTER A SINGLE ADMINISTRATION.** *V Reddy*, T Freeman, S Hoffman, and M Castles. Midwest Research Institute, Kansas City, MO; K Hammerstrom, J Blancato and G Cash, Environmental Protection Agency, Washington, DC and Las Vegas, NV.

#369 ***IN VIVO* AND *IN VITRO* PERCUTANEOUS ABSORPTION AND SKIN EVAPORATION OF ISOFENPHOS IN MAN.** R C Wester, *H I Maibach*, J Melendres, L Sedik, J Knaak, R Wang. Dermatology Department, University of California, San Francisco, CA, and Departments of Food and Agriculture and Health Services, Sacramento, CA.

#370 ***IN VITRO* PERCUTANEOUS ABSORPTION OF BENZO(A)PYRENE (BaP) FROM CRUDE OIL SORBED ON SOIL USING RAT AND HUMAN SKIN.** T A Roy, *J J Yang*, A J Krueger and C R Mackerer. Environmental and Health Sciences Laboratory, Mobil Oil Corporation, Princeton, NJ.

#371 ***IN VITRO* PERCUTANEOUS ABSORPTION OF TOLUENE FROM VARIOUS GASOLINE FORMULATIONS IN THE RAT AND HUMAN.** *J J Yang*, A J Krueger, T A Roy, W J Richman and C R Mackerer. Environmental and Health Sciences Laboratory, Mobil Oil Corporation, Princeton, NJ.

#372 ***IN VITRO* AND *IN VIVO* DERMAL PENETRATION OF HYDROPHILLIC COMPOUNDS IN HAIRLESS GUINEA PIGS.** *I Chu*, K M E Ng, D Dick, C A Franklin, **R L Bronaugh* and DA Somers. Health Protection Branch, Ottawa, Canada, and *Division of Toxicology, Food and Drug Administration, Washington, DC.

#373 **DERMAL ABSORPTION *IN VITRO* AND PHYSICOCHEMICAL PROPERTIES OF p-SUBSTITUTED PHENOLS IN F344 RATS.** *L L Hall*[1], H L Fisher[1], C L Waller[1], M R Sumler[2], *S P Shrivastava*[2], M F Hughes[2], *P V Shah*[3]. [1]HERL, U.S. EPA, RTP, NC, [2]Mantech, Inc., RTP, NC, [3]Hoffmann-La Roche, Nutley, NJ.

#374 **PERCUTANEOUS PENETRATION OF BEAGLE DOG SKIN *IN VITRO*.** P J Y Taupin and P Buckley. Toxicol Laboratories Limited, Ledbury, Herefordshire, UK. Sponsor: *J H Baillie*.

#375 **PREDICTION OF DERMAL PENETRATION OF ORGANIC SOLVENTS FROM VARIOUS VEHICLES.** *J N McDougal*, G W Jepson, and D R Mattie. Toxicology Division (OL-AL/OET), Armstrong Laboratory, WPAFB, OH.

#376 **THEORETICAL DERIVATION OF A SKIN-AIR PARTITION COEFFICIENT.** Z Liron, and *J N McDougal*. Israel Institute for Biological Research, Ness Ziona, Israel and Toxicology Division (OL-AL/OET), Armstrong Laboratory, WPAFB, OH.

#377 **ESTIMATION OF OCTANOL-WATER PARTITION COEFFICIENTS AND CORRELATION WITH DERMAL ABSORPTION FOR SEVERAL POLYHALOGENATED DIBENZO-P-DIOXINS AND DIBENZOFURANS.** J A Jackson[1], J J Diliberto[2], and *L S Birnbaum*[2]. [1]METI, RTP, NC and [2]HERL, US EPA, RTP, NC.

#378 **COMPARISON OF *IN VIVO* AND *IN VITRO* DERMAL ABSORPTION OF CHLOROFORM FROM DILUTE AQUEOUS SOLUTION.** G Keating, Cornell University, Ithaca, NY and K Bogen, Lawrence Livermore National Laboratory, Livermore, CA. Sponsor: *M Buonarati*.

#379 **COMPARISON OF THE *IN VITRO* AND *IN VIVO* RATES OF PERCUTANEOUS ABSORPTION FOR ANILINE, 2% AQUEOUS ANILINE, METHYL-n-BUTYL KETONE 2-BUTOXYETHANOL AND STYRENE FOR HUMAN SKIN.** E D Barber, K F Kolberg, R J Boatman and P J Deisinger. Eastman Kodak Company, Rochester, NY. Sponsor: *J L O'Donoghue*.

#380 **PERCUTANEOUS ABSORPTION AND METABOLISM OF BENZOCAINE: PHARMACOKINETIC DETERMINATION OF ABSORPTION AND METABOLISM PARAMETERS.** S W Collier, C N Barton*, M E K Kraeling, and *R L Bronaugh*. Division of Toxicological Studies and *Division of Mathematics, Food and Drug Administration, Washington, D.C.

#381 **A PHYSIOLOGICALLY BASED PHARMACOKINETIC (PBPK) MODEL FOR TOPICALLY APPLIED BENZOIC ACID IN THE HAIRLESS GUINEA PIG.** S E Macpherson[1], C N Barton[2] and *R L Bronaugh*[1]. [1]Division of Toxicological Studies and [2]Division of Mathematics, US Food and Drug Administration, Washington, DC.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: PATHOLOGY

Chairperson: Charles Lindamood, III, Southern Research Institute, Birmingham, AL

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 1:00 p.m.–2:30 p.m.

#382 **28-DAY ORAL (GAVAGE) TOXICITY STUDY OF METHYL *tert*-BUTYL ETHER (MTBE) IN RATS.** *M J Klan, W D Johnson, N S Hatoum,* and *J K Yermakoff.* Amoco Corporation and IIT Research Institute, Chicago, IL.

#383 **THIRTEEN-WEEK ORAL TOXICITY STUDY OF DIPHENYL ETHER IN RATS.** *W D Johnson,* J P Ehrlich, *N S Hatoum* and *J K Yermakoff.* IIT Research Institute and Amoco Corporation, Chicago, IL.

#384 **13-WEEK DIETARY TOXICITY STUDY WITH PROPICONAZOLE IN MALE MICE.** *R F Potrepka*[1], *K L Pavkov*[1], J C Turnier[1] and *J T Stevens*[2]. Environmental Health Center, Agricultural Division, CIBA-GEIGY Corporation, Farmington, CT[1] and Greensboro, NC[2].

#385 **EFFECTS OF DIETARY RESTRICTION (DR) ON BIOMARKERS OF SURVIVAL IN SPRAGUE-DAWLEY (SD) RATS.** K Keenan, *P Smith,* R Clark, G Ballam*, K Soper, P Hertzog, J Frank, C Baldwin, D Alberts, G P Peter and M van Zwieten. Merck Sharp and Dohme Research Laboratories, West Point, PA, and *Purina Mills, Inc., St. Louis, MO.

#386 **THE ESTABLISHMENT OF A CONTROL ANIMAL PATHOLOGY DATABASE.** J A N McAuslane, C E Lumley and S R Walker. Centre for Medicines Research, Carshalton, UK. Sponsor: *S Gangolli.*

#387 **DEVELOPMENT OF AN ANIMAL MODEL TO TEST HUMAN BREAST IMPLANTATION MATERIALS.** D E Devor, S Rehm, *M P Waalkes,* and *P L Goering**. NCI-FCRDC, Frederick, MD and *FDA, Rockville, MD.

#388 **SILASTIC® II MAMMARY ENVELOPE: EFFECT OF IMPLANTATION ON ENVELOPE INTEGRITY AND AMORPHOUS SILICA DISTRIBUTION.** R T Heinrich, H A Freeman, J M McMahon, and S A Wackerly. Toxicology and Analytical Departments, Dow Corning Corporation, Midland, MI. Sponsor: *J J Clary.*

#389 **TISSUE RESPONSE TO SYSTEMIC EXPOSURE OF BIS(TRIFLUOROMETHLYN) DISULFIDE.** L W Dochterman, A W Assaad, S A Hernandez, D H Moore. Medical Research Institute of Chemical Defense, Edgewood, MD. Sponsor: *R P Solana.*

#390 **TOXICOPATHY OF DIETHYLENE GLYCOL IN CATTLE.** D L Fritz, *R W Coppock.* A A Khan and L Z Florence. Animal Sciences Division, Alberta Environmental Centre, Vegreville, AB, Canada.

#391 **SUBACUTE ORAL TOXICITY OF CYANURIC CHLORIDE IN THE RAT.** R A Jedrychowski, R Gorny, J Stetkiewicz, and I Stetkiewicz. Dept. of Toxicity Evaluation, Inst. of Occupational Medicine, Lodz, Poland. Sponsor: *B D Hammock.*

#392 **90-DAY DOSED-FEED STUDY OF DIISOPROPYL METHYLPHOSPHONATE (DIMP) IN MINK.** T J Bucci, R W Parker, W Wustenberg. PAI, Frederick, MD; V Perman, D J Weiss, College of Vet. Medicine, UMN, St. Paul, MN; *J C Dacre,* USABRDL, Frederick, MD.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: PESTICIDES

Chairperson: Judith Marquis, Arthur D. Little, Inc., Cambridge, MA

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 2:30 p.m.–4:00 p.m.

#393 **PICLORAM HERBICIDE: TWO-GENERATION DIETARY REPRODUCTION STUDY IN SPRAGUE DAWLEY RATS.** *R J Kociba,* G J Zielke, and *W J Breslin.* The Toxicology Research Laboratory, Dow Chemical Co., Midland, MI.

#394 **PREEXPOSURE TO ERGOSTEROL BIOSYNTHESIS INHIBITING FUNGICIDES (EBIFs) ENHANCES ACUTE PHOSPHOROTHIOATE INSECTICIDE TOXICITY IN MALE SPRAGUE DAWLEY RATS AND BOB WHITE QUAIL: THE ROLE OF CYTOCHROME P450.** *M J J Ronis* and T M Badger. Dept. of Pediatrics, Univ. of Arkansas for Medical Sciences and Arkansas Children's Hospital Research Center, Little Rock, AR.

#395 **INCREASES OF PHOSPHORYLASE-A IN HEPATOCYTES ISOLATED FROM RATS TREATED CHRONICALLY WITH DFP.** J H Richburg, and *F C Kauffman.* Joint Graduate Program in Toxicology and Laboratory for Cellular and Biochemical Toxicology, Rutgers University, Piscataway, NJ.

#396 **ORTHO-PHENYLPHENOL: SHORT TERM/CHRONIC ORAL TOXICITY STUDIES IN BEAGLE DOGS.** P F Cosse, K E Stebbins, *W T Stott,* K A Johnson, and L Atkin. Health and Environmental Sciences, Dow Chemical Co., Midland, MI.

#397 **IMMUNOTOXICITY OF MALATHION.** *A M Fan*. Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency, Berkeley, CA.

#398 **CHLORPYRIFOS EXPOSURE MONITORING OF AERIAL APPLICATION FLAGGERS.** *J H Ross*, D Meinders, *R I Krieger*, T Thongsinthusak. California Dept. of Pesticide Regulation, Sacramento, CA.

#399 **BIOAVAILABILITY TO RATS OF BOUND ^{14}C RESIDUES IN STORED WHEAT TREATED WITH PIRIMIPHOSMETHYL.** *S Kacew*[1], S U Khan[2], and W Matthews[3]. Dept. Pharmacology, University of Ottawa, Ottawa, Ont.,[2]Land Resource Research Center, Agriculture Canada, Ottawa, Ont. and [3]ADAS Central Science Lab., Ministry of Agriculture, Fisheries and Food, Slough, England.

#400 **ASSESSMENT OF OCULAR TOXICITY IN DOGS FOLLOWING TREATMENT WITH AN ORGANOPHOSPHATE PESTICIDE (OP).** *J E Atkinson* and L F Rubin. Bio/Dynamics, Inc., East Millstone, NJ and University of PA, School of Veterinary Medicine, Philadelphia, PA.

#401 **AN INHALATION DEVELOPMENTAL TOXICITY STUDY OF PHOSPHINE IN RATS.** *R E Schroeder*[1], *P E Newton*[1], J B Sullivan[2], *W M Busey*[3]. [1]Bio/dynamics Inc., East Millstone, NJ; [2]DEGESCH America Inc, Weyers Cave, VA; [3]EPL, Herndon, VA.

#402 **SAFETY EVALUATION OF PROPICONAZOLE.** *J T Stevens*, J W Barnett, C B Breckenridge, and S S Thompson, Ciba-Geigy Corporation, Agricultural Division, Greensboro, NC.

#403 **SAFETY STUDY OF TWO FLEA CARPET POWDERS IN CATS AND DOGS.** W K Rumbeiha, Y S Lin, *F W Oehme*, J A Pickrell and A Costello. Comparative Toxicology Laboratories, Kansas State University, Manhattan, KS and S C Johnson Co, Racine, WI.

#404 **SUBCHRONIC DIETARY TOXICITY OF 2,4-D ACID, 2,4-D AMINE SALTS AND 2,4-D ESTERS IN RATS.** B L Yano, *G E Schultze**, J R Szabo, R A Corley, P F Cosse, and L H Billups*. The Toxicology Research Laboratory, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI and *Hazleton Laboratories America, Inc., Vienna, VA.

#405 **INTERACTION OF ATROPINE AND HI6 TREATMENT OF SOMAN POISONING.** I Koplovitz, R G Menton*, M C Matthews*, M B Shutz, S A Kelly, C R Bangledorf. US Army Medical Research Institute of Chemical Defense, APG, MD; and *Battelle Memorial Institute, Columbus, OH. Sponsor: *J A Romano, Jr.*

#406 **EFFECT OF SUBACUTE AND NO-EFFECT DOSES OF ACEPHATE ON CHOLINERGIC AND NON-CHOLINERGIC MECHANISMS OF RAT BRAIN.** W Rajendra. Sri Vekateswara Univ., Div. of Molecular Phys., Dept. of Zoology, Andhra Pradesh, India. Sponsor: *Durisula Desaiah*.

#407 **EVALUATION OF CANDIDATE SKIN DECONTAMINANTS AGAINST PERCUTANEOUS ORGANOPHOSPHORUS COMPOUND EXPOSURE USING ACETYLCHOLINESTERASE INHIBITION.** J A Blank, *D W Hobson*, T H Snider and R L Menton. Battelle Memorial Institute, Columbus, OH.

#408 **USE OF A SOMAN ANALOG TO DETECT ORGANOPHOSPHORUS ANHYDRIDE HYDROLASE (OPAH) ACTIVITY.** J J Schlager, K M Brecht, C A Broomfield and D M Maxwell. Pharmacology Division, United States Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD. Sponsor: *R P Solana*.

#409 **ENCAPSULATION OF PHOSPHOTRIESTERASE INTO CARRIER ERYTHROCYTES.** L Pei, G Omburo, W D McGuinn, I Petrikovics, R F Raushel, and *J L Way*. Dept. of Medical Pharmacology and Toxicology, Texas A&M University College of Medicine, College Station, TX.

#410 **ENERGY RELATED *IN VIVO* ALTERATIONS IN HEMIDIAPHRAGM MUSCLE BY ACUTE METHOMYL INTOXICATION.** *R C Gupta*, J T Goad, W L Kadel. Toxicol. Sect., Breathitt Vet. Center, Murray State University, Hopkinsville, KY.

#411 **KINETIC AND METABOLIC FACTORS IN INTERSPECIFIC VARIATION IN SENSITIVITY TO ORGANOPHOSPHATE PESTICIDES BETWEEN ADULT AND NESTLINGS EUROPEAN STARLINGS AND REDWINGED BLACKBIRDS.** M F Wolfe[1,2], R J Kendall[1,2], and M J Hooper[1]. [1]The Institute of Wildlife and Environmental Toxicology Clemson Univ., Clemson, SC and [2]Pharm/Tox Graduate Program, Wash. State Univ., Pullman, WA. Sponsor: *D L Eaton*.

#412 **KINETIC MECHANISM OF HUMAN SERUM A-ESTERASE.** J A Vitarius and *L G Sultatos*, Dept. Pharmacology and Toxicology, UMDNJ, Newark, NJ.

#413 **A MATHEMATICAL MODEL FOR HUMAN SERUM A-ESTERASE ACTIVITY.** *L G Sultatos* and J A Vitarius. Dept. Pharmacology and Toxicology, UMDNJ, Newark, NJ.

#414 **COMPARATIVE INHIBITION OF RODENT AND HUMAN ERYTHROCYTE ACETYLCHOLINESTERASE.** *P S Rao* G H Roberts[1], P L Griswold, and *P W Ferguson*. School of Pharmacy and Medical Technology Program[1], Northeast Louisiana University, Monroe, LA.

#415 **MECHANISM OF 1,3-DICHLOROPROPENE (1,3-D) INDUCED TOXICITY IN URINARY BLADDER EPITHELIUM OF MICE.** *W T Stott*, A L Mendrala, J M Redmond, A F Nwosu, and L G Lomax. Dow Chemical Co., Midland, MI; Rohm & Haas Co., Spring House, PA.

#416 **RISK TO NON-TARGET ORGANISMS IN FRESHWATER AND ESTUARINE ENVIRONMENTS DUE TO DRIFT FROM THE AERIAL APPLICATION OF ULTRA-LOW VOLUME (ULV) PERMETHRIN.** *J K Britt*. Florida Dept. of Agriculture, Bureau of Pesticides, Tallahassee, FL.

#417 **EFFECT OF DELTAMETHRIN ON SEROTONIN OF RAT BRAIN.** S Wang, Q Zheng, and T Geng. Institute of Occupational Medicine, Chinese Academy of Preventive Medicine, Beijing, China. Sponsor: *R D Irons*.

#418 **MOLINATE METABOLISM DIFFERS SUBSTANTIALLY IN HUMANS AND RATS.** *R Krieger*, H Fong, S Frederickson, B Hernandez, M McChesney, *J Ross*, F Schneider, J Seiber, T Thongsinthusak, California Dept. of Pesticide Regulation, Sacramento and University of California, Davis.

#419 **VEHICLE- AND ROUTE-DEPENDENT EFFECTS OF DELTAMETHRIN ON MOTOR FUNCTION IN THE RAT.** L J Somerholter, M E Gilbert and *K M Crofton*. ManTech Technology Services Corp, and Neurotoxicology Division, USEPA, RTP, NC.

#420 **SERUM BONE GLA-PROTEIN CONCENTRATIONS INCREASE FOLLOWING BRODIFACOUM EXPOSURE.** *M Murphy*[1], E Hope[1] and T Stanton[2]. Veterinary Diagnostic Medicine, University of Minnesota, St. Paul, MN[1], and Letterman Army Medical Center, San Francisco, CA[2].

#421 **MICROSOMAL GLUTATHIONE S-TRANSFERASE:ACTIVATION BY PESTICIDES.** K G Moorhouse and J E Casida. Pesticide Chemistry and Toxicology Laboratory, University of California, Berkeley, CA. Sponsor: *M T Smith*.

#422 **THE EFFECT OF P,P'-DDD ON INTRACELLULAR CALCIUM IN RAT MYOMETRIAL CELLS.** *D R Juberg*[1], E L Stuenkel[2], and *R Loch-Caruso*[1]. [1]Toxicology Program, Dept. Environmental and Industrial Health, [2]Dept. Physiology, University of Michigan, Ann Arbor, MI.

#423 **DEVELOPMENT OF A RECOMBINANT BACULOVIRUS EXPRESSING AN INSECT SELECTIVE NEUROTOXIN: POTENTIAL FOR PEST CONTROL.** *B F McCutchen*, P Choudary, E Fowler, S Maeda and *B D Hammock*, Dept. of Entomology, Dept. of Environmental Toxicology, UC Davis, Davis, CA; and CIBA-GEIGY Agricultural Biotechnology Unit, Research Triangle Park, NC.

#424 **DENITRIFICATION BY RHIZOBIUM WITH 2,4-DICHLOROPHENOXYACETIC ACID.** M Ashraf, and M I H Aleem. Graduate Center For Toxicology, University of Kentucky, Lexington, KY. Sponsor: *L Robertson*.

#425 **THE *IN VITRO* METABOLISM OF LUFENURON AND DIFLUBENZURON, TWO BENZOYLPHENYL UREAS, IN SUBCELLULAR FRACTIONS OF INDUCED AND UNINDUCED MOUSE LIVER.** D M Grant and *W C Dauterman*. Dept of Toxicol, North Carolina State University, Raleigh, NC.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: CALCIUM

Chairperson: Kendall B. Wallace, University of Minnesota, Duluth, MN

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 1:00 p.m.–2:30 p.m.

#426 **CALCIUM-DEPENDENT INHIBITION OF PROTEIN SYNTHESIS BY RICIN IN CULTURED MACROPHAGES.** S M Naseem, R B Wellner, and J G Pace. US Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, MD. Sponsor: *R W Wannemacher, Jr.*

#427 **CALCIUM SEQUESTRATION IN RAT CEREBELLUM IS DIFFERENTIALLY AFFECTED BY SELECTED NEUROTOXICANTS.** *P R S Kodavanti*, *W R Mundy*, G J Harry and *H A Tilson*, Neurotox Div, Hlth Effects Res Lab, USEPA and DART, NTP, NIEHS, Research Triangle Park, NC.

#428 **SELECTIVE EFFECTS OF CYANIDE ON THE EXCITATORY AMINO ACID-INDUCED ELEVATION OF INTRACELLULAR CALCIUM LEVELS IN NEURONAL CULTURE.** *Z Cai* and P P McCaslin. Dept. Pharmacol. and Toxicol., Univ. Miss. Med. Center, Jackson, MS.

#429 **Ca^{2+}-DEPENDENT CELL INJURY TO CULTURED RAT CORTICAL NEURONS IS PREVENTED BY NEOMYCIN AND LEUPEPTIN.** M R Castillo and J R Babson. Dept. of Pharmacology and Toxicology, College of Pharmacy, University of Rhode Island, Kingston, RI. Sponsor: *Z A Shaikh*.

#430 **ANTIPLATELET ACTIVITY, TOXICITY, AND EFFECT ON CYTOSOLIC IONIZED CALCIUM OF α,α'-BIS[3-(N,N-DIETHYLCARBAM OYL)PIPERIDINO]-p-XYLENE-2HBr.** B A Lyman, S E Bond, R D Howell, *E O Dillingham*, *W H Lawrence*, and R Gollamudi. Depts. Medicinal Chemistry and Clinical Laboratory Sciences, Univ. Tennessee, Memphis, TN.

#431 **THE RELATIONSHIP BETWEEN ELEVATED CYTOSOLIC CALCIUM, MITOCHONDRIAL DYSFUNCTION AND IRREVERSIBLE CELL INJURY IN CULTURED RAT RENAL PROXIMAL TUBULE CELLS (PTC) EXPOSED TO S-(1,2,3,4,4-PENTACHLOROBUTADIENYL)-L-CYSTEINE (PCBC).** C M Walsh, M W Smith, B F Trump, and *T W Jones*. University of Maryland Toxicology Program and Dept. of Pathology, University of Maryland School of Medicine, Baltimore, MD.

#432 **ROLE OF $[Ca2+]_i$ IN INDUCTION OF c-fos, c-jun, c-myc, AND hsp70 IN RAT PROXIMAL TUBULE EPITHELIUM (PTE) FOLLOWING INJURY.** N Yamamoto, A Maki, J D Swann, I K Berezesky and B F Trump. Department of Pathology, University of Maryland, and MIEMSS, Baltimore, MD. Sponsor: *C U Eccles*.

#433 **ROLE OF INCREASED CYTOSOLIC FREE CALCIUM IN IONOMYCIN-INDUCED CYTOTOXICITY OF RAT RENAL CORTICAL EPITHELIAL CELLS—A DIGITIZED FLUORESCENCE IMAGING STUDY.** T Jiang and *D Acosta*. Div. of Pharmacology and Toxicology, College of Pharmacy, The Univ. of Texas, Austin, TX.

#434 **ADVERSE EFFECTS OF TETRACAINE ON CYTOSOLIC CALCIUM AND MITOCHONDRIAL MEMBRANE POTENTIAL IN CULTURED CORNEAL EPITHELIAL CELLS.** R L Grant and *D Acosta*. College of Pharmacy, University of Texas, Austin, TX.

#435 **PHOSPHILIPASE A_2 DEPENDENT AND INDEPENDENT SITES MEDIATE THE EFFECTS OF Ca^{2+} ON RAT RETINAL MITOCHONDRIAL METABOLISM.** C J Medrano, M L Suber, and *D A Fox*. University of Houston, College of Optometry, Houston, TX.

#436 **CALMODULIN AND CALCIUM CHANNEL ANTAGONISTS INHIBIT ACETAMINOPHEN-INDUCED DNA FRAGMENTATION HEPATOXICITY IN MICE.** *G B Corcoran*, R D Yorkin, and *S D Ray*. Toxicology Program, Univ. of New Mexico, College of Pharmacy, Albuquerque, NM.

#437 **POLY ADP-RIBOSYLATION, CA^{2+}-MEDIATED DNA DOUBLE-STRAND BREAKS AND THE CYTOTOXICITY OF CISPLATIN TO RENAL CORTEX CELLS.** S Vamvakas, D Bittner, M Phillip, and *W Dekant*. Institute of Toxicology, U of Wurzburg, FRG.

MONDAY AFTERNOON, FEBRUARY 24
CONVENTION CENTER—EXHIBIT HALL

POSTER SESSION: ENDOCRINE

Chairperson: Michael A. Gallo, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ

Displayed: 1:00 p.m.–4:00 p.m.
Attended: 2:30 p.m.–4:00 p.m.

#438 **COMPARISON OF THYROTROPIC AND HEPATIC MICROSOMAL ENZYME INDUCTIVE EFFECTS OF CGS 12970 AND PHENOBARBITAL (PB) IN RATS.** *C H Borman*, A F Plocinski, M A Mehesy, E R Lasinski, D N McMartin, P S Sahota, *M J Schlosser*, *J C Kapeghian*, *E T Yau*, *V M Traina*. Research Dept., Pharmaceuticals Div., CIBA-GEIGY Corporation, Summit, NJ.

#439 **ALTERATION OF THYROID FUNCTION BY UDP-GLUCURONOSYLTRANSFERASE (UDP-GT) INDUCERS.** Y P Liu, J Liu and *C D Klaassen*. University of Kansas Medical Center, Kansas City, KS.

#440 **EFFECTS OF PRONAMIDE ON THYROID FUNCTION AND HEPATIC CLEARANCE OF L-THYROXINE IN MALE RATS.** G A Hazelton and B A Kulwich. Rohm and Haas Company, Spring House, PA. Sponsor: *H E Scribner*.

#441 **ULTRASTRUCTURAL AND FUNCTIONAL ADRENAL EFFECTS OF PD132301-2, IN MALE GUINEA PIGS.** M A Dominick, W Bobrowski, and *J R MacDonald*. Parke-Davis Pharm Res Div, Warner-Lambert Co., Ann Arbor, MI.

#442 **CASTRATION (ODX) PARTIALLY ALLEVIATES THE SUPPRESSION OF CYTOTOXIC T LYMPHOCYTE (CTL) ACTIVITY BY 3,3',4,4',5,5'-HEXACHLOROBIPHENYL (HxCB).** *G K Dekrey*, J A Deyo, *N I Kerkvliet*. Environmental Health Science Center and College of Veterinary Medicine, Oregon State University, Corvallis, OR.

#443 **INFLUENCE *IN VITRO* OF CHLOROTRIAZINES ON ESTROGEN RECEPTORS IN HUMAN AND RAT REPRODUCTIVE TISSUES.** J L Wittliff, R D Wiehle, L L Wenz, *J T Stevens**, and *L T Wetzel**. Hormone Receptor Laboratory; Dept. of Biochemistry, University of Louisville, Louisville, KY and Agriculture Div., *CIBA-GEIGY Corp., Greensboro, NC. Sponsor: *M O Tisdel*.

#444 **CYTOTOXICITY OF PD132301-2 IN GUINEA PIG ADRENOCORTICAL CELL CULTURES.** L A Vernetti, *G H I Wolfgang*, *J R MacDonald*, M A Dominick, *D G Pegg*. Parke-Davis Pharmaceutical Research Division, Warner-Lambert Company, Ann Arbor, MI.

#445 **INVESTIGATION OF ENDOCYTOSIS OF FLUORESCEINATED LATEX BEADS (FLB) BY RAT THYROID FOLLICULAR CELLS *IN VITRO*.** J E Sagartz, A Ozaki, and C C Capen. Department of Veterinary Pathobiology, The Ohio State University, Columbus, OH. Sponsor: *V L Carter*.

#446 **DIFFERENTIAL ENDOCRINE RESPONSE IN BEAGLE DOGS TO KETOCONAZOLE AND FPL 13582XX, A NOVEL ANTIFUNGAL AGENT.** S B Rawleigh, *A J Jacobs*, C F Morris, and R Simmons. Fisons Pharmaceuticals, Divisional Research and Development, Rochester, NY.

MONDAY, FEBRUARY 24
4:00 p.m.–5:00 p.m.
CONVENTION CENTER—BALLROOM 6B

ANNUAL BUSINESS MEETING

Chaired by SOT President Donald J. Reed, Ph.D.

Open to SOT members only. A drawing for two complimentary airline tickets will be held during the meeting; you must be present to win.

MONDAY, FEBRUARY 24
5:00 p.m.–6:30 p.m.
SHERATON HOTEL—WEST BALLROOM

MECHANISMS SPECIALTY SECTION MEETING

MONDAY, FEBRUARY 24
5:00 p.m.–6:30 p.m.
SHERATON HOTEL—EAST BALLROOM

RISK ASSESSMENT SPECIALTY SECTION MEETING

MONDAY, FEBRUARY 24
6:30 p.m.–8:30 p.m.

SOCIAL EVENING AT THE SEATTLE ART MUSEUM

Buses leave from the Sheraton and Westin Hotels at 6:20 p.m. Tickets are $38 per person, which includes admission to the museum, transportation to and from the Sheraton and Westin Hotels, the food sampling, beer, wine, and soft drinks. Pre-registration only. Sorry, no refunds or exchanges.

TUESDAY MORNING, FEBRUARY 25
8:30 a.m.–11:30 a.m.
CONVENTION CENTER—BALLROOM 6A

SYMPOSIUM: CURRENT CONTROVERSIES IN CANCER CAUSATION

Sponsored by the Carcinogenesis Specialty Section

The rodent cancer bioassay protocol developed under the aegis of the U.S. National Toxicology Program (NTP) has generated uniform data which have led to new insights regarding mechanisms of cancer causation (e.g., "genotoxic" vs. "non-genotoxic"). The NTP protocol includes testing of chemicals at or near the maximum tolerated dose (MTD). This, in turn, has led to the recognition that some chemicals are cancer causing only at or near the MTD. The findings impact upon the mechanism of cancer causation and have led to the hypothesis that bioassays performed at or near the MTD may induce mitogenesis, which in turn could be pivotal to the carcinogenic process. The speakers will present views on the role of mitogenesis in the multi-stage carcinogenic process and how this impacts upon risk assessment.

Chairperson: Herbert S. Rosenkranz, University of Pittsburgh, Pittsburgh, PA

#447	8:30	**CURRENT CONTROVERSIES IN CANCER CAUSATION: INTRODUCTION.** *B D Goldstein*. Robert Wood Johnson Medical School, Piscataway, NJ.
#448	8:35	**ANIMAL CANCER TESTS AND CAUSES OF CANCER.** *B N Ames*. University of California, Berkeley, CA.
#449	9:20	**MULTI-STAGE CARCINOGENESIS: MUTAGENESIS, CELL REPLICATION AND THE RODENT BIOASSAY.** I B Weinstein. Columbia University, NY.
#450	10:05	**ANIMAL ASSAYS FOR CARCINOGENS: WHAT DO THEY TELL US?** R A Griesemer. National Institute of Environmental Health Sciences, Research Triangle Park, NC.
#451	10:50	**THE MTD, MITOGENESIS, AND HUMAN RISK OF CANCER.** *B D Goldstein*. Robert Wood Johnson Medical School, Piscataway, NJ.

TUESDAY MORNING, FEBRUARY 25
8:30 a.m.–11:30 a.m.
CONVENTION CENTER—BALLROOM 6C

SYMPOSIUM: NEURONAL-GLIAL INTERACTIONS: RELEVANCE TO NEUROTOXIC MECHANISMS

Sponsored by the Neurotoxicology Specialty Section

Chairpersons: Michael Aschner, Albany Medical College, Albany, NY and Richard LoPachin, SUNY-Stony Brook, Stony Brook, NY

Definitions of nervous tissue function and dysfunction are generally based on a single cell type—the neuron. Consistent with this neuron-centric theme, glial cells have been traditionally relegated to a passive role in structural support. However, research over the past two decades suggests that these cells form complex, interdependent relationships with neurons, which influence structure, function and metabolism of each cell type. Thus, glial cells might play a significant role in the expression of neurotoxicity, perhaps acting in a compensatory fashion or as a primary site of effect with secondary consequences for the neuron. To address the potential involvement of glial cells in neurotoxicity, this symposium will: 1) provide an overview of neuroglial morphology, physiology, and pharmacology, 2) discuss reciprocal interactions of nerve and glial cell, 3) indicate how neurotoxic and traumatic state might affect neuronal-glial interactions, 4) identify the consequences of disrupted neuronal-glial interactions, and 5) suggest future research directions. Assessing the participation of neuroglia in responses of nerve cells to chemical and mechanical injury could identify non-traditional sites of action, delineating complex neurotoxic mechanisms.

#452	8:30	**NEURONAL-GLIAL INTERACTIONS: RELEVANCE TO NEUROTOXIC MECHANISMS: INTRODUCTION.** R M LoPachin. SUNY-Stony Brook Medical School, Stony Brook, NY.
#453	8:40	**NEUROGLIA: PHYSIOLOGY AND PATHOLOGY.** M D Norenberg. University of Miami School of Medicine, Miami, FL.
#454	9:25	**THE NEURONAL-GLIAL INTERFACE AS A FUNCTIONAL UNIT.** *R M LoPachin*. SUNY-Stony Brook Medical School, Ston Brook, NY.

#455 9:55 **AXON-SCHWANN CELL INTERACTIONS IN TOXIC AND TRAUMATIC STATES.** *P S Spencer.* Oregon Health Sciences University, Portland, OR.

#456 10:30 **THE ROLE OF ASTROCYTES IN CHEMICALLY-INDUCED CNS INJURY.** *M Aschner.* Albany Medical College, Pharmacology and Toxicology, Albany, NY.

TUESDAY MORNING, FEBRUARY 25
8:30 a.m.–11:00 a.m.
CONVENTION CENTER—ROOM 607

PLATFORM SESSION: RISK ASSESSMENT I

Chairpersons: Barbara D. Beck, Gradient Corp., Cambridge, MA and Richard A. Parent, Consultox, Ltd., Baton Rouge LA

#457 8:30 **CHEMICAL STABILITY OF POLYURETHANE FOAM-COVERED BREAST IMPLANTS.** P Amin, A Kydonieus, and *K M Witkin*. Convatec/Bristol Myers Squibb, Princeton, NJ and Weinberg Consulting Group Inc., Washington, DC.

#458 8:45 **RISK SCREENING WITH DATA FROM THE TOXIC CHEMICAL RELEASE INVENTORY.** J Darr, N Chiu, A Battin. Office of Toxic Substances/US EPA, Washington, DC. Sponsor: *G M Wang*.

#459 9:00 **A TIME-TO-TUMOR APPROACH TO 1,3-BUTADIENE RISK ASSESSMENT.** *D A Dankovic*, R J Smith, A J Bailer, and L T Stayner. National Institute for Occupational Safety and Health, Cincinnati, OH.

#460 9:15 **RISK ASSESSMENT TO SUPPORT CERCLA DELISTING OF RESIDUES FROM THERMAL TREATMENT OF DIOXIN-CONTAINING MATERIALS.** *E J Hixson*, J R Beck, and M A Robbins. Radian Corporation, Austin, TX.

#461 9:30 **NDMA CONTAMINATION OF DRINKING WATER: A COMPARISON OF RISK ASSESSMENT APPROACHES.** R W Brecher, R E Haley and H C Light. Human Health Assessment Division, ELI Eco Logic International Inc., Rockwood, Ontario, Canada. Sponsor: *J Doull*.

#462 9:45 **PCB CARCINOGENICITY ASSESSMENT.** V J Cogliano, *D V Singh*, C B Hiremath, A Chiu, D L Bayliss, C H Ris. USEPA, Human Health Assessment Group, Washington, DC.

#463 10:00 **RANKING CARCINOGENIC HAZARDS OF PESTICIDES.** B R Stern and L S Gold. Cell and Molecular Biology Division, Lawrence Berkeley Laboratory, Berkeley, CA. Sponsor: *B N Ames*.

#464 10:15 **CALCULATING SITE-SPECIFIC CLEANUP LEVELS FROM RfDs AND CANCER POTENCY SLOPES.** *S T Cragg*, R F Schecter. Radian Corp, Herndon, VA, Radian Corp, Research Triangle Park, NC.

#465 10:30 **CANCER RISK ASSESSMENT FOR AIRBORNE FORMALDEHYDE.** S V Dawson and *G V Alexeeff*. California Office of Environmental Health Hazard Assessment, Berkeley, CA.

#466 10:45 **RISK ASSESSMENT OF POTENTIAL HUMAN CARCINOGENICITY OF INHALED PERCHLOROETHYLENE (PCE).** *G V Alexeef* and D C Lewis. California Office of Environmental Health Hazard Assessment, Berkeley, CA.

TUESDAY MORNING, FEBRUARY 25
8:30 a.m.–11:00 a.m.
CONVENTION CENTER—ROOM 608

PLATFORM SESSION: SUBCELLULAR SITE OF ACTION OF TCDD

Chairperson: Kathleen Rodgers, Livingston Research Center, University of Southern California, Los Angeles, CA

#467 8:30 **EFFECT OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) ON ANTI-CD3-INDUCED CALCIUM MOBILIZATION IN C57Bl/6 MICE.** *C M Neumann*, J A Oughton, and *N I Kerkvliet*. College of Veterinary Medicine and Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

#468 8:45 **CHARACTERIZATION OF THE ARYL HYDROCARBON (Ah) RECEPTOR IN THE HUMAN CERVICAL C-411 CANCER CELL LINE.** X Wang, M Santostephano and *S Safe*. Dept. Physiol. and Pharmacol., Texas A&M University, College Station, TX.

#469 9:00 **AGE AND ROUTE-OF-ADMINISTRATION DIFFERENCES IN THE ANTIESTROGENIC EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN IN THE FEMALE SPRAGUE-DAWLEY RAT.** R Dickerson, L Howie and *S Safe*. Dept. of Vet. Physiol and Pharmacol., Texas A&M University, College Station, TX.

#470 9:15 **DIFFERENTIAL SENSITIVITY TO THE ANTIESTROGENIC EFFECTS OF TCDD BETWEEN SEXUALLY IMMATURE AND MATURE MICE.** M J DeVito, *T Thomas**, *T H Umbreit**, and *M A Gallo**. Joint Graduate Program Toxicology, Rutgers, University; *Dept. Env. Comm. Med., UMDNJ-RWJ Med. School, Piscataway, NJ.

#471 9:30 **DIFFERENTIAL EFFECTS OF TCDD ON MITOGENIC CALCIUM SIGNALLING IN T CELL SUBPOPULATIONS.** R Seethala, U B Gunnia, E Yurkow, T J Thomas, *M A Gallo* and *T Thomas*. Departments of Environmental and Community Medicine and Pharmacology and Toxicology, and The Clinical Research Center, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ and Rutgers University, Piscataway, NJ.